THE ARAB POTASH COMPANY PLC

Technical Specification

For IFB NO.: 202602583/AS

Supply, Design, Installation and Commissioning of Racking Systems at APC Main Warehouse

1.0 GENERAL

1.1 This specification describes the technical requirements for design, engineering, supply, materials, fabrication, dimensions, paintings and finishing, documentation, certification, testing & delivery, and installation of Racks Systems at the Warehouses in **Arab Potash Co.** Plant Site located at the south end of the Dead Sea, near Ghour Al-Safi, 130 km from the south of Amman – Jordan.

1.2 The new racking system project intends to increase the storing spaces, increase the load carrying capacity, and to make the raking system provided complies with highest safety standards, as the new racking system will be installed inside the main Warehouse.

1.3 Unless otherwise mentioned within this specification, the following definitions shall apply for the same meaning:

- **The Arab Potash Company:** APC / Owner / Employer / Buyer.
- **Vendor:** Vendor (bidder) tendering or supplying against this specification / contractor / Vendor / Manufacturer / supplier and/or sub-supplier of what is specified herein.
- **The offered system:** Light Shelf Racking System equipped with plastic storage bins, Pallet Racking Systems and all accessories that are necessary to final functional intent use by APC.

1.4 This specification is part of and complements the inquiry or order to which it is attached and referred to. Vendors tendering or supplying against this specification shall adhere wherever possible to the requirements contained herein, as that the supplied system shall be constructed, and tested in accordance with this specification, and all related specifications, codes, standards, and regulations referred to therein.

1.5 Wherever a Vendor's standard work departs from the APC requirements, the Vendor shall clearly indicate where these differences or deviations occur in this bidding sheet, or otherwise confirm his compliance against each paragraph of this specification. The APC is not bound to consider any offer which does not follow closely the APC requirements.

1.6 The scope against this contract shall be EPC basis as the vendor shall be responsible for engineering, procurement and construction of all system.

2.0 INSTRUCTIONS FOR BIDDERS:

2.1 The bid as well as all correspondence, documents including drawings to the bid exchanged by the bidder and APC shall be written in English language.

2.2 Pre-Qualification of Vendors: Bids will only be accepted from experienced vendors who have successfully completed work for similar jobs in the last five years. Each bidder shall provide a list of such projects stating location, completion date, budget, client's names and telephone numbers.

2.3 Site Visit: The bidder, at his own responsibility and risk, has to visit the Site to examine and inspect the existing facilities for dimensions, operation and any possible contingencies affecting the entire scope of supply and obtain all information that may be necessary for preparing the bid and entering into a contract.

2.4 The original copies of the Bid shall be typed or written in indelible ink and shall be signed by a person or persons duly authorized to bind the Bidder to the contract. Proof of authorization shall be furnished in the form of a written power-of attorney which shall accompany the Bid. All pages of the Bid where entries or amendments have been made shall be initialed by the person who's signing the Bid.

2.5 All bidding sheet pages are to be signed and stamped by the bidder and each clause to be marked with complying or not complying, in case the bidder is not complying with any idea or deviating from it, he should clearly mark that clause and comment directly on that clause.

2.6 Bids must be submitted in sealed and three separate envelopes; the first contains the technical bid; the second contains the commercial bid, the third contains the bid bonds and bank guarantees as required by APC procurement, The bidder must write in an indelible ink on each of the envelopes whether it contains commercial or technical bids, envelopes shall be titled with APC reference number and contract name.

2.7 The bid submitted by the bidder shall be valid for 120 days, and shall comprise the original including the followings:

2.7.1 Bids documents.

2.7.2 Outline dimensional drawings for all racking system showing general arrangements & space requirements.

2.7.3 Structural Analysis calculation for offered systems loads.

2.7.4 List of Deviation (if any)

2.7.5 Written power of attorney authorizing the signatory of the bid to commit the bidder.

2.7.6 Information on the bidder experience in similar projects.

2.7.7 The Vendor QC/QA plan.

2.7.8 Country of origin for materials.

2.7.9 Personnel capabilities: key persons proposed for manufacturing & site installation along with their CVs.

2.7.10 Vendor's Resources and manufacturing capabilities in his workshop.

2.7.11 Bid bonds as required.

2.7.12 Condition of contract.

2.7.13 Work plan and time schedule:

Workflow bar chart (in MS Projects Software or primavera) to be submitted along with vendor quotation specifying the duration required to achieve each stage activities of the job, manpower required for each stage, duration of each stage and the critical path of activities.

2.7.14 Offer validity.

3.0 VENDOR'S RESPONSIBILITY AND SCOPE OF SUPPLY

3.1 The VENDOR shall be responsible for all engineering, systems design, all components sizing, finishing, fabrication, materials of construction, inspection, and certification of the materials, and Installing of all system component and systems specified.

3.2 The specification described herein referred to the APC requirements, but the Vendor shall propose the most recent technology for the best suitable offered systems, Vendor shall advise the systems & materials taking into account the operating conditions & requirements as indicated in this specification , the Vendor shall employ his experience with similar systems to optimize the cost as much applicable in the way that doesn't affecting the function , safety & the life span of the racking system.

3.3 The Vendor's scope of supply shall include but not limited to:

3.3.1 Supply & installation of the complete racking system structural Frames which shall contain the following elements:

- Columns.
- Connecting beams.
- Leveling plates.
- Vertical & horizontal bracings.
- rack decking.
- The Protectors for the racking system.

3.3.2 Supply & installation of the complete plastic storage bins with all related accessories for the sizes required by the employer, the total quantities as mentioned in BOQ. (Optional Item)

3.3.3 Supply & installation of Light Shelf Racking System type (A) as per the attached drawing, this type shall have the following dimensions: inside width of 2000mm, inside depth of 600mm, total height of 6000mm with a number of shelves shall be according to the row number, the total quantities as mentioned in the BOQ.

3.3.4 Supply & installation of the Pallet racking system type (B) as per attached drawing , this type to be installed in main warehouse having dimensions: inside width of 2300mm, inside depth of 1050mm, total height of 7000mm max with 7 shelves above ground, the total quantities as mentioned in BOQ (Optional Item).

3.3.5 Post-installed chemical anchors installations for the racking system fixation at the warehouse floor. The anchoring procedure, materials and method statement shall be submitted for the Employer's approval.

3.3.6 The Vendor shall be responsible for removing any obstacles may be faced during installation and, he shall be responsible to return the situation as is.

3.3.7 Racking system complete design.

3.3.8 Third party inspection fees as per APC requirements.

3.3.9 Industrial Storage bin material complete design.

3.3.10 Structural analysis for the racking systems.

3.3.11 Installation, Site erecting and commissioning.

3.3.12 Site Leveling work for the racking system installation including any shimming or grout works.

3.3.13 All temporary supporting structure during installation of the racking system.

3.3.14 Identification plate for every racking shelf.

3.3.15 Loading & unloading for the racking system and Industrial Storage bin.

3.3.16 Transportation.

3.3.17 Manpower and workforce sufficient to complete the project work within the schedule.

3.3.18 Sandblasting & painting finish for the racking system.

3.3.19 All documentation including: manuals, testing certifications if any, data sheets & drawings.

3.3.20 Warranties.

4.0 REFERENCE CODES & SPECIFICATIONS

4.1 All engineering, design, materials of construction, fabrication, inspection, testing and certification shall conform to the edition of the following standards and codes in effect at the time of order placement, or their equivalent.

- American National Standards Institute (ANSI)
- American Institute of Steel Construction (AISC)
- American Welding Society (AWS)
- American Society for Testing Materials (ASTM)
- German Institute for Standardization (DIN)
- British Standard (BS)
- European Standard (EN)
- International Organization for Standardization (ISO)
- Occupational Safety and Health Administration (OSHA)
- Swedish standard surface preparation (SIS)
- The Society for Protective Coatings (SSPC)

5.0 CONFLICTING REQUIREMENTS

In the event of a conflict between this specification and referenced codes & standards, the most stringent requirements shall apply. If the VENDOR cannot readily determine the most stringent, they shall immediately contact the APC for written resolution.

6.0 SITE CONDITIONS & SPECIAL PROJECT REQUIREMENTS

Racking system will be installed INDOOR, but must be designed to be suitable under the site conditions described as follows: -

- The ambient temperature varies from occasional winter temperature of 5 ºC to a summer maximum shade temperature of 50 ºC.
- Humidity: 15% - 92%, 42% average.
- The atmosphere is humid and dusty. Normal dust and salt dusts especially potassium chloride KCl
- The elevation of site is 400 meters below sea level.
- Atmospheric pressure is 1060 mbar.
- Corrosion: Severe attacks from brine –laden atmosphere and from deposition of aggressive material.
- Erosion: Desert condition; high wind-born particle attack.
- Seismic Loads Are In Accordance With The ASCE 7: Ss = 1.13 g, S1 = 0.45 g, Site Class = D & Seismic Design Category D.
- Design loads: as the racking systems are indoor storage units, only seismic loads shall be considered as environmental design loads, in addition to the dead, live (storage) and operational loads; wind and rainfall loads are not applicable.

7.0 GENERAL REQUIREMENTS

7.1 The working period will be from eight in the morning until four in the evening 8:00Am To 4:00Pm, excluding weekend days (Friday and Saturday).

7.2 Vendor shall Submit safety plan for the site work showing task risk assessment and the safety control measures.

7.3 The Vendor shall avail a certified safety officer during the work at the site.

7.4 The Vendor to comply with APC safety policies & work procedures in regards.

7.5 The Vendor to provide the safe access scaffolding for his staff that is complying with APC safety policies.

7.6 The Vendor is responsible for the safety of the electrical hand tools that are complying with the safety requirements of Arab Potash Company.

7.7 The Vendor shall submit a project schedule and time frame which will be subjected to the APC's approval.

7.8 The Vendor to assign resident project manager that will be in direct contact communication with APC during the project progress and shall update the APC project manager with daily and weekly report for the work progress, any safety issues and shall attend any coordination meeting called by APC.

7.9 The Vendor shall avail All lifting, supporting tools, and vehicles based on the work needs, and to ensure that all of them are certified.

7.10 The Vendor shall provide his staff with necessary PPE's.

7.11 The vendor to ensure that his employees are participated in social security and covered with health insurance services during their contract period.

7.12 APC will not be responsible to provide any transportation, housing, and any other materials and/or services.

7.13 The Offered Systems structural and elements design shall comply with international standards as mentioned hereby.

7.14 The Vendor shall be responsible for working area Housekeeping and removing waste material to scrap area and debris removal out of site on daily basis.

7.15 The contractor shall provide the As-built drawings and other close out document in both formats: hardcopy & softcopy, the project drawings to be provided in AutoCAD format.

7.16 The Vendor shall provide a written warranty for the installed racking system for a period of (10) years at least from the date of project taking over.

7.17 The Vendor shall provide mill test certificates that are approved by a third party before the racking system delivery.

7.18 The vendor shall schedule at his expenses an inspection visit to the workshop and galvanization facility for Employer inspection and approval.

8.0 RACKING SYSTEM SPECIFICATIONS

8.1 The Vendor shall be responsible for all engineering, design, manufacture, supply, fabrication, materials of construction, assembly, finishing, painting, commissioning, inspection, testing and certification of offered systems, all related works shall be submitted for engineer/employer approval prior to purchasing or fabrication .

8.2 There are two racking systems that will be provided as per the attached drawing and the following requirements:

8.2.1 Design, supply & installation of Light Shelf Racking System Type (A) according to the following technical and operational requirements:

8.2.1.1 Dimensions: inside width of 2000mm, inside depth of 600mm, total height of 6000mm max.

8.2.1.2 Load capacity: all racks shall be provided with galvanized steel shelves (refer to clauses 8.13.6 and 8.13.9 to 8.13.11) designed and manufactured to withstand a load of 350 kg over a total span of 2,000 mm for each shelf (level), uniformly distributed.

8.2.1.3 Shelf decking: decking shall be steel mesh or bar grating capable to withstand the load capacity required by 8.2.1.2, galvanized (refer to clauses 8.13.6 and 8.13.9 to 8.13.11) and powder coated “white color”, to ensure durability, visibility, ventilation and compliance with warehouse safety practices.

8.2.1.4 The rear side of each shelf and rack unit shall be protected with wire mesh to enhance product containment and operational safety.

8.2.1.5 All racks shall be equipped with storage bins manufactured from durable plastic material suitable

for warehouse picking operations, with minimum dimensions of 15 cm (H) × 22 cm (W) × 50 cm (D), equivalent to 16 liters.

8.2.1.6 Rack configurations shall be as follows:

- Racks 1–8: shelf height (vertical pitch) of 30 cm, with the number of levels adjusted accordingly to suit the maximum total height of 6,000 mm, equipped with 10,500 storage bins (quantity on re-measurement basis – Optional Item, refer to BOQ Item 3).
- Racks 9–20: the first 5 levels shall have a height of 40 cm and the remaining levels a height of 30 cm (number of levels adjusted to suit the maximum total height of 6,000 mm); divider plates shall be installed at 50 cm intervals on each shelf to support SKU segregation and inventory control.
- Racks 21–26: all shelf levels shall have a height of 60 cm, with divider plates installed every 65 cm.
- Racks 27–30: all shelf levels shall have a height of 80 cm, with divider plates installed every 100 cm.

8.2.2 Pallet racking system type (B) having dimensions: inside width of 2300mm, inside depth of 1050mm, total height of 7000mm max with 7 shelves above ground, all racks to be provided with metal shelves that are designed and manufactured to withstand load of 1650 kg/m2 for each shelf and 28000 kg for racking unit which is higher, the construction shall be of Galvanized steel with powder coating finish, The pallet racking system to be suitable for the following pallet Specifications:

- Type: Industrial pallet
- Dimensions: 1100 mm (W) x 1100 mm (D)
- Weight: 1500 kg to 2000 kg.
- (Optional Item)

8.3 Both of the supplied offered systems shall adhere to the following minimum requirements:

8.3.1 The material shall be constructed from galvanized steel with powder coating finish.

8.3.2 The Light Shelf Racking System type (A) shall have continuous guide rail suitable to guide the order pickers around the light shelf racking system and to provide protection against collision.

8.3.3 The racking system type (B) shall have protectors against collision from a forklift truck, the required number of basic protectors are Frame protector, end rack protector & Corner protector shall be calculated according to the related codes.

8.3.4 The offered systems design to consider non-uniform (irregular) loading distribution.

8.3.5 The offered systems to be designed and manufactured to be statically stable for standing alone features.

8.3.6 The vendor shall provide analysis to support the selection of the columns and beams and perform load test for the racking system that will guarantee the required loading capacity shall be within the area of infinite cycles of loading.

8.4 The offered system shall contain the following elements:

8.4.1 Columns.

8.4.2 Connecting beams.

8.4.3 Leveling plates under the structural frame that are anchored on the floor

8.4.4 Vertical & horizontal bracings to stabilizes the main girders of the racking systems & to contribute to the distribution of load effects,

8.4.5 Pallet rack decking that are placed on pallet rack load beams for racking system type (B).

8.5 The offered systems to be designed and manufactured to be statically stable for standing alone feature and shall be provided with bracing vertically and horizontally and for pallet racking the system shall be provided with movable pallet support for adjustable spacing, each shelf to have 4 numbers, and all shelve shall be adjustable at any level.

8.6 The pallet racking system type (B) columns and beams to be manufactured from heavy duty reinforced sections: (C-shape or RHS) with rigid connectors, the min. thickness shall not be less than 5mm for beams and for columns the thickness shall not be less than 2.4mm.

8.7 The beside columns shall be connected together and if the column share in between two racking shelves units then the column shall be designed to accommodate double the loading capacity.

8.8 The racking system columns to be provided with foot plates and leveling plates fixed with post installed chemical anchors M16 min size with embedded length of 200mm min., the racking system to be level with suitable shimming wherever needed, the column shall be provided with protector plate at the foot plates level

8.9 The Vendor shall be responsible for removing any obstacles maybe faced during installation and, he shall be responsible to return the situation as is.

8.10 The offered systems shall be provided with identification plates suitable for the racking system, for every racking shelf according to the following:

8.10.1 For Light Shelf Racking System type (A) a min. quantity of 27,000 plates distributed according to the satisfaction of the employer/engineer made from acrylic printed plates fixed on the racking units directly.

8.10.2 For pallet racking system type (B): two for each shelf made from hot dip galvanized steel 1mm min.

8.11 **Units:**

8.11.1 The International System (SI) units shall be used for all design calculations and on all drawings.

8.11.2 Unless otherwise mentioned in the tender documents, all dimensions are in millimeters and levels in meters.

8.12 **Submittals**

8.12.1 Shop drawings

- Shop Drawings produced by the Vendor shall include detailed dimensions, fabrication details, all material details, welding details, and proper and clear representation of the surrounding equipment, structure, or any other items present.
- Ensure connections design, details and calculations, used for the selection of connections applicable to the Work, Shop-drawings shall be issued by a qualified engineer assuming responsibility for

design of the connections in accordance with the requirements of the applicable international standard.

- The Vendor shall not begin fabrication until the Drawings covering the Work has been reviewed and approved by the APC/Engineer. Submit shop drawings sufficiently in advance of desired fabrication to avoid construction delay.
- The APC's Engineer will review the shop drawings for general compliance with the contract documents only, which does not relieve the Vendor of the responsibility for the adequacy of design details, the accuracy of the detail dimensions or shop details, and the fit up parts to be assembled. Further, the review of "Shop Drawings" by the APC's Engineer shall not relieve the Vendor of the responsibility for any errors made by the Vendor or for changes made by the Vendor from the Engineering design drawings or specifications that are not covered by the Vendor's written notification (or submitted diagrams) to the APC's Engineer and his written acceptance (or revised construction drawings) of such change.

8.12.2 Structural analysis for the racking system showing loading capacities and the stress diagram, the vendor to provide analysis report and model on Sap2000, STAAD Robot Structural Analysis Professional.

8.13 **Materials**

8.13.1 All materials of construction provided by the Vendor shall be new, of high quality and suitable for the intended application, Materials and workmanship shall be in accordance with the best and most modern practice. All materials shall be quoted with reference to ASTM or equivalent international standards.

8.13.2 Certified test reports for the materials shall be provided upon request.

8.13.3 Substitution of alternative sizes or grades of steelwork only permitted with written approval by the APC's Engineer.

8.13.4 Equal or "superior" material may be approved based on the engineer's review. Any delay/cost implication due to such substitution is to be borne by the Vendor.

8.13.5 Structural steel plates and steel structure: conforming to ASTM (or approved equal) having a minimum yield stress of 250 N/mm².

8.13.6 Galvanization hot dip galvanized of minimum zinc coating of 460 gm/m² to BS 4592. Refer to clauses 8.13.9 to 8.13.11 for the requirements applicable to each racking system type.

8.13.7 Connection Bolts and nuts shall be stainless steel S.ST 316 to ASTM A194, friction type, min Yield Strength 500 MPa

8.13.8 All welding consumables shall be in accordance with ANSI/AWS D1.1 and compatible with the base material being welded.

8.13.9 Light Shelf Racking System Type (A) – non-welded components: in lieu of post-fabrication hot dip galvanizing per clause 8.13.6, non-welded cold-formed structural members (uprights, bracings and profiles) may be manufactured from pre-galvanized steel sheet having a minimum zinc coating of Z275 (EN 10346) / G90 (ASTM A653/A653M).

8.13.10 Light Shelf Racking System Type (A) – welded components: welded components may be manufactured from pre-galvanized steel sheet as per clause 8.13.9, provided that all welded areas receive a specialized anti-corrosion surface treatment of zinc-rich cold galvanizing coating conforming to recognized international standards (e.g. ASTM A780), providing protection equivalent to galvanizing. All welding joints shall be ground flush to give a smooth final finish.

8.13.11 Pallet Racking System Type (B): galvanizing shall be strictly in accordance with clause 8.13.6 (hot dip galvanizing, minimum zinc coating of 460 g/m²) with no modification. For both racking systems, the painting specification and dry film thickness stated in Section 10.0 shall not be changed.

8.14 Fabrication and Manufacturing

8.14.1 The manufacturing work shall be in accordance with the current technology, best engineering practice and comply with the requirements of this specification and the relevant international standards and codes as referred in this documents.

8.14.2 Welding shall comply with the requirements of Section IX of the ASME Code, AWS and WRC standards and shall be performed by welders certified and experienced in such welding procedures. Welding procedures, weld maps and procedure qualification records shall be submitted to the APC/Engineer for review prior to the start of fabrication.

8.14.3 All welded joints shall be continuous seal welds. ground flush and smooth, no interruptions, gaps or exceptions are allowed. All welds shall be full penetration, full fusion and free of undercut, craters and surface cracks and porosity.

8.14.4 Normal steel fabrication tolerances shall be acceptable. These shall be shown on the VENDOR'S drawings.

8.15 Site Installation & Erection

8.15.1 Erection shall be according to manufacturer Manual of installation procedure, the steelwork shall be erected under the direction of a competent, experienced supervisor.

8.15.2 Mark and match-mark materials for field assembly.

8.15.3 Only bolted connections shall be permitted for field assembly, unless noted otherwise.

8.15.4 All bolts shall be provided with washers under the nut.

8.15.5 Splicing of rolled or welded sections shall not be permitted unless approved by the APC's Engineer.

8.15.6 Holes shall be Cut, drilled, or punched perpendicular to steel surfaces. Thermally cut bolt holes using oxy-acetylene or enlarge holes by burning is not permitted

8.15.7 Structural steel shall be set accurately in locations and to elevations as indicated on the agreed drawings

8.15.8 Align, level & adjust various members that form part of complete frame or structure before permanently fastening. Before assembly, clean bearing surfaces and other surfaces that will be in permanent contact with members. Perform necessary adjustments to compensate for discrepancies in elevations and alignment.

8.15.9 Provide temporary shores, guys, braces, and other supports during erection to keep structural steel secure, plumb, and in alignment against temporary construction loads and loads equal in intensity to design loads. Remove temporary supports when permanent structural steel, connections, and bracing are in place unless otherwise indicated.

8.15.10 Base Bearing and Leveling Plates: Clean concrete- and masonry-bearing surfaces of bond-reducing materials and roughen surfaces prior to setting plates, Clean bottom surface of plates after installing the post-installed chemical anchors

8.15.11 All bolts to be tightening as per the requirements of RCSC specifications for structural joints.

8.15.12 Touch up Painting shall be done immediately after erection.

9.0 PROJECT WORK METHODOLOGY

9.1 Providing the project submittals for APC approval prior materials provision at site.

9.2 Submitting a project schedule and time frame which shall subject to APC's approval that involves not interrupting the ongoing handling for the stored stock materials and regular forklift movement.

9.3 Submitting safety plan for the site work showing task risk assessment and the safety control measures.

9.4 Starting mobilization

9.5 Concrete surface preparation.

9.6 New racking material delivery at site and storing them in organized order at the location allocated by APC team.

9.7 Installing the Offered Systems (as mentioned on the attached drawing).

9.8 Making housekeeping on regular basis.

9.9 Inspection & testing the new racking system.

9.10 Providing the as-built drawings & other project close out documents.

9.11 Taking over the new racking system to APC team upon final acceptance report releasing by APC.

10.0 SURFACE TREATMENT AND PAINTING REQUIREMENTS

Painting to be carried according to the following specification and procedure:

10.1 **Surface Preparation:** should be cleaned from oil, grease and other contamination prior to sand blasting , External surface to be sand blasted to near white metal according to BS 4232, 2nd Quality (Swedish Standard SA 3) with shot or grit to achieve a surface amplitude of 50 microns. All surface defects likely to be detrimental to the protective system such as cracks or surface laminations shall be removed in accordance with BS4360. Fabrication defects shall be similarly removed.

10.2 **Zinc coating:** All external surfaces shall be dust off the surface, sand blasted surfaces shall receive hot dip galvanizing of minimum zinc coating of 460gm/m² to BS 4592, that shall not be more than 4.0 hours after starting blasting operation.

10.3 **For Light Shelf Racking System Type (A) components manufactured from pre-galvanized steel sheet as permitted by clauses 8.13.9 and 8.13.10, the pre-galvanized zinc coating replaces clauses 10.1 and 10.2; the zinc surface shall be cleaned and prepared prior to powder coating as recommended by the powder coating manufacturer, and clause 10.4 (Top Finish coat) shall apply without change.**

10.4 **Top Finish coat :** After Galvanizing curing the surfaces to be cleaned from any contamination then shall receive Epoxy-powder coating polymerized under high temperature , powder coating shall be of 4 mils (100 microns) dry film thickness , **Top Coat Color (RAL No.) shall be**:

- **The frame**: RAL 5010 (Gentian blue).
- **Beams:** RAL 1007 (Daffodil yellow)
- **Protectors:** RAL 1026 (Luminous yellow)
- Light Shelf Racking System shelf decking : white.

- Top coat final color shall be approved & confirmed by APC Engineer.

In all cases the top Coat Color : RAL No. shall be submitted to the engineer/employer approval according to the related OSHA standard.

11.0 INSPECTION & TESTING

11.1 The contractor shall nominate an independent third party for APC approval to perform the following but not limited to: examination, testing, inspection and witnessing while maintaining a weekly inspection report. At their own expense throughout the life of the project, the third party shall visually inspect 100% of the racking system sections and welding joints pre and after galvanization to perform a non-destructive test i.e. (PT, Porosity and cracks) for 10% of the welding joints.

11.2 The APC reserve the right to inspect the work at any time during manufacturing by APC's representative and/or any third party (an independent testing and inspecting agency) that is authorized and approved by the APC to inspect the work at the expense of the contractor, in order to ensure that the materials and the workmanship are in accordance with this specification.

11.3 The Vendor shall provide the testing agency with access to places where steel work is being fabricated or produced to perform tests and inspections.

11.4 Vendor to notify the APC's Engineer at commencement of shop work and field work so that testing or inspection will be scheduled.

11.5 All relevant tests called for in this specification shall be successfully carried out to the satisfaction of the APC's representative or the approved third party who shall witness all shop testing and accepted the testing results, the tests and inspection includes:

11.5.1 Visual examination for all dimensions

11.5.2 Inspection for all welded joints quality and thicknesses that will be prior to painting. The minimum inspection of welding shall be 100% visually inspected for the following:

- Visual Examination of Welds
- Cracks in the weld or adjacent surfaces.
- Slag inclusions.
- Porosity.
- Lack of fusion at the edge of weld.
- Undercut.
- Concave weld profile.
- Excessively convex weld bead.
- Poor transition between weld and members welded.
- Lack of alignment between components of joint.
- Lack of penetration at the root of the weld .
- Excessive penetration bead.

11.5.3 Welder's qualifications documents & procedures specification.

11.5.4 Manufacturing details.

11.5.5 Sand blasting process.

11.5.6 Painting materials and paints thicknesses.

11.5.7 Material quality verification.

11.6 The criteria for the acceptance of welds shall be as follows:

11.6.1 Cracks, undercuts, lack of penetration and lack of side wall fusion are not permitted.

11.6.2 Porosity not greater than 2 mm or group porosity not greater than 3 mm or slag inclusions not greater than 3 mm long in any direction are permitted, provided that there are no more than a total of 3 such defects per 100 mm weld.

11.6.3 All tests shall be carried out by an approved firm and the results examined by an approved welding inspector, and a report by the inspector furnished to the APC's Engineer assessing the results in accordance with the criteria.

11.6.4 Weld repairs necessitated by visual or non-destructive test examinations shall be made in accordance with the procedure used to perform the original weld and shall be re-inspected by the same method which disclosed the repair defect.

11.7 Should any failure to conform to this specification, the APC has the right to reject the goods and the Vendor shall make all alterations necessary to meet specification requirements free of charge.

11.8 The inspection and tests will be conducted on the premises of the supplier before shipping procedure take place.

11.9 The APC will have the right to inspect, test and where necessary reject the goods after arrival in Jordan if any defect will be found in the delivered goods , and shall in no way be limited of it has previously been passed prior to the shipment from the country of origin.

11.10 After the delivered system will be site assembled by the Vendor, the units shall be tested on site by the APC team in accordance with the Vendor's instructions and on-site guidance.

11.11 Bolted Connections: connections will be tested and inspected according to RCSC's "Specification for Structural Joints.

11.12 Any deficiencies or exemptions to the Specification shall be identified to the Vendor who shall, within an acceptable time frame, perform the corrective measures.

11.13 Site testing shall establish that the Offered Systems supplied meets the requirements set out in this specification , Typical variables which will be tested and measured are:

11.13.1 System dimensions.

11.13.2 System stability.

11.13.3 System capability for carrying the loads.

11.13.4 System deflection under the loads.

11.13.5 Floor anchoring conditions.

12.0 PREPARATION FOR DELIVERY

12.1 The supplied system shall be delivered in a good condition, free from damage and misalignment, any which has been damaged will be rejected.

12.2 All openings shall be plugged or covered securely, all exposed threaded connection or bolts shall be covered by a corrosion inhibitor, all pieces shall be mounted on skids that are suitable for transportation wherever applicable.

12.3 All finished surfaces shall be protected.

12.4 Suitable supports shall be provided wherever needed to avoid damage during shipment.

12.5 Small parts which are to be shipped loose shall be bagged or boxed and marked with the order and item number of each.

12.6 The vendor is responsible about securing the project consignments on the agreed temporary storing location and protecting them from rain, environment, and other outer conditions.

13.0 DOCUMENTATION

The technical documentation required categorized against following milestones:

13.1 **The technical data for bidding (in English language):**

13.1.1 Outline dimensional drawings for all racking systems showing general arrangements & space requirements.

13.1.2 Structural Analysis calculation for the Offered Systems loads.

13.1.3 List of Deviation (if any)

13.1.4 Information on the bidder experience in similar projects.

13.1.5 The Vendor QC/QA plan.

13.1.6 Personnel capabilities: key persons proposed for manufacturing & site installation along with their CVs.

13.1.7 Vendor's Resources and manufacturing capabilities in his workshop.

13.1.8 Country of origin for materials.

13.1.9 Work plan and time schedule:

Workflow bar chart to be submitted along with vendor quotation specifying the duration required to achieve each stage activities of the job, manpower required for each stage, duration of each stage and the critical path of activities.

13.2 **After awarding contract: submission of Certified dimensional drawings & data for detailed engineering design & calculations:**

Should an order result, the VENDOR will be required to supply soft and hard copies of each of the following documents (in English language):-

13.2.1 The as-built dimensional drawings for all racking systems showing general arrangements & space requirements All drawings shall be submitted in 2D AutoCAD and PDF formats.

13.2.2 Material Testing certificates.

13.2.3 Vendor standard testing certificates.

13.2.4 Installation procedure.

13.2.5 Vendor Safety plan.

13.2.6 The Vendor QC/QA plan.

13.2.7 Work plan and time schedule:

Work flow bar chart (in MS project software or Primavera) to be submitted along with vendor quotation specifying the duration required to achieve each stage activities of the job, manpower required for each stage, duration of each stage and the critical path of activities.

14.0 DELIVERY TIME:

14.1 The delivery time of all equipment units shall be to APC Plant site/Ghour Al-Safi, the delivery time shall be the shortest possible, The Vendor shall indicate the delivery time clearly in his bid along with project schedule, the APC reserve the right to overlook or reject any offer doesn't indicate delivery time period clearly.

14.2 Maximum accepted project completion duration: **(240) calendar days** after receipt of purchase order or official notice.

14.3 Any time lost due to APC warehouse operations or other APC operational requirements shall be compensated to the Vendor by way of an extension of time only; no additional cost shall be payable by APC.

14.4 If the vendor delay in the delivery of the equipment to APC Plant site/Ghour Al-Safi / Jordan within the period that indicated in his bid and PO conditions, The APC reserves the right to deduct (0.7 %) of the total contract price for each completed week of delay of contract execution, to a maximum value of (7.5%) of the total contract price.

15.0 EVALUATION OF BIDS:

15.1 Examination of Tenders and Determination of Responsiveness:

15.1.1 Evaluation of tenders will consist of two stages: stage one involves "Technical evaluation". Only Bidders whose technical offer is satisfactory will be considered for the second stage, which consists of the "Commercial evaluation". Prior to the detailed evaluation of tenders, the Owner will determine whether each tender; (i) has been properly signed; (ii) is accompanied by the required securities; (iii) is substantially responsive to the requirements of the Tender Documents; and (iv) provides any clarification and/or substantiation that the Owner may require.

15.1.2 A substantially responsive tender is one that conforms to all the terms, conditions, and specifications of the Tender Documents, without material deviation or reservation.

15.2 The technically accepted offers will be finally evaluated according to below formula based on 40% weight for commercial evaluation and 60% weight for technical evaluation.

Final Score = ((Weight Of Technical Evaluation)*(Technical Score)) + ((Weight Of Commercial Evaluation)*(Least Price/Bidder Offer)).

15.3 The technical evaluation will consider only the qualified tenderers, The scoring method will be applied for the technical features out of 100%, the major criteria will be as follows:

	Vendor's Offer technical Data & features	Scoring
A-	Project Submittals : Layout drawings & structural analysis	30%
B-	The Offered Systems design & the Constructional requirements	25 %
C-	Previous experience in similar projects	20 %
D-	Project schedule & Delivery Time	15 %
E-	The Vendor quality plan (ISO certification , QC/QA documents)	10 %
Passing score: 70%	**Total**	**100 %**

15.4 **The technical features that will be considered in bids evaluation criteria:**

15.4.1 Information relating to the examination, clarification, evaluation and comparison of tenders and recommendations for the award of a contract shall not be disclosed to tenderers not officially concerned with such process until the award to the successful tenderer has been announced. Any effort by a tenderer to influence the Owner's processing of tenders or award decisions may result in the rejection of the tenderer's tender.

15.4.2 The bidder to indicate the previous experience in similar projects during the last five years via list of completed projects , its cost, the customer & the year of project execution.

15.4.3 To assist in the examination, evaluation and comparison of tenders, the Owner may request breakdowns of unit rates. The request for clarification and the response shall be in writing, but no change in the price or substance of the tender shall be sought, offered, or permitted except as required to confirm the correction of arithmetic.

15.4.4 The APC reserve the right to overlook any offer that doesn't clearly indicate and prove the

technical features for bids evaluation as specified and scored in this clause, The following criteria consider the tenderer non-responsive :

- If the offered system does not fully comply with APC major technical requirements.
- If there is no similar installation of the Offered Systems.
- If the tender does not include itemized BOQ pricing , payments schedule and delivery time

15.4.5 The Vendor shall include in his bids certain values for the offered design structural and operational parameters along with enough specification, components size, components rating, datasheets and engineering drawings.

15.4.6 The vendor shall prove if he has any certification in ISO 9000 series, his quality plan and quality assurance policies and previous projects reference in similar industry application in last 5 years shall be included in his bid.

16.0 PAYMENT TERMS

16.1 **All payments shall be open account basis detailed as follows:**

16.1.1 **Twenty percent (20%)** advance payment of the total contract value against submitting a bank guarantee covering an equal value and valid until receipt of clean shipping documents (for foreign supply) or delivery of all equipment at site (for local supply) , the bank guarantee shall be issued and confirmed by a bank working in Jordan.

16.1.2 **Fifty percent (50%)** of the total contract value against the delivery of all systems at APC plant site upon successful inspection of the goods and issuance of acceptance report by the APC.

16.1.3 **Thirty percent (30%)** of the total contract value upon site installation and successful completion of whole system installation, field testing, commissioning and issuance of acceptance report by the APC, against submitting a bank guarantee as maintenance bond covering an amount equal to five percent (5%) of the total contract value valid for (12) months from taking over date, or (18) months from the date of the arrival of the goods to APC site / Safi.

16.2 All guarantees shall be issued or confirmed by a reputable bank in Jordan.

16.3 The guarantees forms shall be acceptable to the APC.

17.0 ATTACHMENTS :

17.1 **Drawings :**

17.1.1 The below listed drawings which that attached to the tender documents shall be considered as a part of the contract documents and shall be read in conjunction with specification, BOQs and conditions of contract.

17.1.2 The drawings included in this package are not Issued for Construction (IFC) drawings and may not be complete in all respects. They are provided for reference and guidance purposes only to indicate the general scope of the work. The Vendor/Contractor shall verify all dimensions, materials, details, layouts, installation requirements, and site conditions, and shall not rely solely on the information shown on these drawings. The Vendor/Contractor shall be responsible for the preparation of all required shop drawings, including complete detailing, coordination, component and element sizing, and all related provisions necessary for the successful execution, completion, and intended operation of the works.

List of Attached Drawings			
S.N	**Drawing No.**	**Rev**	**Drawing Title**
1	9317-A0	0	MAIN WAREHOUSE: NEW RACKING SYSTEMS AT THE MAIN WAREHOUSE (GENERAL ARRANGEMENT)

18.0 WARRANTIES:

VENDOR warrants to APC that the equipment supplied is free from faults in design, workmanship and material, and is of sufficient sizes and capacities and of proper material to satisfactorily fulfill the performance requirements. Should any defect in design, workmanship, material or operating characteristics develop during the first year of operation, VENDOR agrees to make all necessary or desirable alterations, repairs and replacements of the defective equipment, free of charge, and shall pay any transportation expenses to and from the plant site.

In the event that defects necessitate the rejection of the system or any part thereof, APC shall have the right to use the system until such time when new system is provided to replace the rejected one.

19.0 BID PRICING & BILL OF QUANTITIES

19.1 General

19.1.1 The Vendor shall price the BOQ and write prices clearly in an indelible ink against each item.

19.1.2 The priced BOQ document shall be included in separate sealed envelope contain commercial offer, this technical sheet shall be kept without mention prices.

19.1.3 The price rates and sums inserted in the Bills of Quantities are deemed to include engineering, design and the supply of all materials, labor , manpower ,fabrication, assembly, installation , sandblasting, painting , documentation , certification , transportation , delivery , all overheads, profit margins and installation of the complete equipment set.

19.1.4 The price rates and sums inserted in the Bills of Quantities are deemed to include removing any obstacles maybe faced during installation and the cost of returning the situation as is.

19.1.5 Any un-priced work and/or materials in the BOQ but shown in the drawings and/or indicated in the scope of supply and considered necessary to functionally complete the work to intent use; then this work and/or material shall be deemed included in the priced BOQ.

19.1.6 The Vendor shall price every item in the pricing sections of the Bills of Quantities. Any item left unpriced shall be deemed to have no financial value. No claim for payment in respect of unpriced items will be admitted. Lump sums set against groups of items are not acceptable unless otherwise mentioned and may render the bid/tender liable to rejection.

19.1.7 APC has the right for partially awarding the scope of supply items , that subject to the sole discretion of the APC with respect to their usage wholly, partially or complete deletion from the scope of work. with no further changes on prices of the items remain.

19.1.8 The contract against A/M PR shall be considered Engineering , Procurement & Construction Contract (EPC) for which the Vendor is responsible to furnish the services necessary for the engineering , procurement and construction including preparation and development of drawings, specifications , documentation and the supply and installation work of all necessary equipment and systems.

19.1.9 The bidder shall fill out ALL financial data and prices as itemized in the BOQ summary, including all fees, custom duties and all taxes, knowing that the grand total amount price that filled out by bidder is deemed including : all fees, custom duties and all taxes, if any item is left unpriced , that shall be deemed to have no financial value .

19.1.10 The quantities stated in the BOQ are estimated. The Contract shall be subject to re-measurement, and payment shall be made on the basis of the actual quantities executed at site and approved by the Engineer/Employer, at the unit rates stated in the priced BOQ.

19.1.11 The quoted prices shall be deemed inclusive of Contractor’s All Risks (CAR) insurance, third-party liability insurance, and any other applicable insurance coverage required under the tender.

19.2 **Bill of Quantities Summary Price:**

BOQs Summary For IFB NO.: 202602583/AS Supply, Design, Installation and Commissioning of Racking Systems at APC Main Warehouse					
Item	**Description**	**Unit Nr.**	**Unit Price (JOD)**	**Amount**	
				JOD	**Fils**
1.	Design, supply & delivery of Light Shelf Racking System Type (A) as per the tender specification and required dimensions. The price shall include the supply of Light Shelf Racking System with the related necessary accessories, fixation elements, transportation, handling, sand blasting, painting & certifications. Priced for the number of units supplied & delivered that are complete for the intended use, as estimated on a re-measured basis.	**240**			
2.	**Optional Item:** Design, supply & delivery of the Pallet racking system type (B) as per the tender specification and required dimensions. The price shall include the supply of racking system with the related necessary accessories, fixation elements, transportation, handling, sand blasting, painting & certifications. Priced for the number of units supplied & delivered that are complete for the intended use, as estimated on a re-measured basis. **(This item is optional and subject to the sole decision of the Employer with respect to their usage wholly, partially, or complete deletion from the Scope of Work).**	**103**			

BOQs Summary
For IFB NO.: 202602583/AS
Supply, Design, Installation and Commissioning of Racking Systems at APC Main Warehouse

Item	Description	Unit Nr.	Unit Price (JOD)	Amount	
				JOD	Fils
3.	**Optional Item:** Supply and delivery of storage bins for the light shelf racking system, manufactured from durable plastic material dedicated for warehouse picking operations, minimum dimensions 15 cm (H) x 22 cm (W) x 50 cm (D) equivalent to 16 liters, including all fixing accessories and shelf divider plates required for SKU segregation, all as per the tender specification and to the Engineer/Employer approval. Priced for the number of units supplied that are finally ready for the intended use, as estimated on a re-measured basis. **(This item is optional and subject to the sole decision of the Employer with respect to their usage wholly, partially, or complete deletion from the Scope of Work).**	**10,500**			
4.	The installation work of the Light Shelf Racking System Type (A), the price shall include all activities related installation work: site installation, fit up, leveling, anchoring to ground, shimming, grouting, work force, manpower, transportation & handling. Priced for the number of units installed that are completely ready for the intended use with all related accessories, as estimated on a re-measured basis.	**240**			

BOQs Summary
For IFB NO.: 202602583/AS
Supply, Design, Installation and Commissioning of Racking Systems at APC Main Warehouse

Item	Description	Unit Nr.	Unit Price (JOD)	Amount	
				JOD	Fils
5.	**<u>Optional Item:</u>** The installation work of the Pallet racking system type (B), the price shall include all activates related installation work: site installation, fit up, leveling, anchoring to ground, shimming, grouting, work force, manpower, transportation & handling. Priced for the number of units installed that are completely ready for the intended use with all related accessories, as estimated on a re-measured basis. **(This item is optional and subject to the sole decision of the Employer with respect to their usage wholly, partially, or complete deletion from the Scope of Work).**	**103**			

BOQs Summary
For IFB NO.: 202602583/AS
Supply, Design, Installation and Commissioning of Racking Systems at APC Main Warehouse

Item	Description	Unit Nr.	Unit Price (JOD)	Amount	
				JOD	Fils
Total Amount:					
Discount on Total Amount (if any):					
Total Amount after Discount deduction (if any):					
Custom Duties (if any):					
Sale Tax on Total Amount after Discount:					
Grand Total Amount Including Fees, Custom Duties and All Taxes (JOD):					
Grand Total Amount for Contract (JOD) in Written:					

The bidder shall fill out ALL financial data and prices as itemized in BOQ summary including : all fees, custom duties and all taxes, knowing that the grand total amount price that filled out by bidder is deemed including: all fees, custom duties and all taxes, if any item is left unpriced, that shall be deemed to have no financial value.