



Toase-ehe Park Sanati Gohar Ofoh
Petrochemical Co.
**CONCEPTUAL, BASIC and DETAIL DESIGN
ENGINEERING OF STYRENE PARK OFFSITE**



Document Title: Packing, Marking & Shipping Procedure

Document No.: EI027-HSE-VD – GE– PRO– 005- R1

Rev. 01

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STYRENE PARK OFFSITE

Document Title:
Packing, Marking & Shipping Procedure

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Packing, Marking & Shipping Procedure for Air Cooler

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1. PURPOSE

This procedure covers the requirements and instructions to be followed by the DAMAFIN for packing and marking of Air-cooled heat exchangers that will be procured in “Toase-ehe Park Sanati Gohar Ofogh Petrochemical Co. CONCEPTUAL, BASIC and DETAIL DESIGN ENGINEERING OF STYRENE PARK OFFSITE PROJECT”

2. SCOPE

This procedure is applicable for packing and shipping of tube bundles, machinery and steel structure parts of All Items.

3. REFERENCES

-DAMAFIN SPECIFICATION

-API 661



4. RESPONSIBILITY

DAMAFIN is solely responsible for packing and marking of goods.

5. GENERAL REQUIREMENTS FOR PACKING

The packing of the equipment and materials shall be carried out in order to comply with transport conditions, so it shall imply on following items:

- 5.1. The goods shall be dried, cleaned internally and externally, removed from all welded spatter ,scale, rust, cuttings, fittings, etc., as well as any all foreign material.
- 5.2. Protection against environmental corrosion caused by extremes of humidity, condensation, rain, dust, sand, salted air and sea spray shall be provided.
- 5.3. Packing means to efficiently protect the materials during the total transport operation:
- 5.4. High quality wooden cases and/or crates shall be used.

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6. PACKING PROCEDURE FOR TUBE BUNDLES

6.1. Drying of Tube bundles

- Horizontal bundle to be lifted by 1 or 2 Cranes, each of them to hold one header.
- Unit to be alternatively tilted to one side and to the other (30 degrees).
- Then bundle to be laid down horizontally.
- Then bundle to be dried by hot air circulation for at least 3 hours.

6.2. All flange facing shall be covered and couplings plugged to prevent damage. Flange cover shall be 6mm steel plates bolted to the flange with a minimum of 4 bolts.

6.3. Machined surfaces, flange faces and threads of bolts shall be coated with heavy rust preventive grease to prevent corrosion during shipment and storage.

6.4. Flanges and connections shall be closed with blind flanges and plugs. Permanent blind flanges or covers included in the vendor's scope shall be bolted with service stud bolts and nuts.

6.5. External surfaces of header box and surface of plugs shall be painted (thin layer) with the paint that used for last layer of painting header boxes.

6.6. External surfaces of bundles frame shall be cleaned and four damafin marks "DTT" shall be painted at the side wall near the header boxes with blue and red colour.

6.7. Inside protection of Tube bundles





After carryout drying completely, all nozzles shall be blind and Nitrogen purging shall be done with at least 1.5 bar pressure. One pressure gauge and valve shall be installed on tube bundle. The periodically inspection shall be done every 4 months.

6.8. Installing Stand for carrying tube bundles and set them on truck

6.8.1: Tube bundles with the width below 2.4m

-For carrying this type of tube bundles we use painted IPE 180 with the length equal to width of tube bundle plus 100mm.

Between IPE 180 and bundle, structures parts, a 10 mm Teflon sheet or rubber shall be placed.

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-This stands will be fixed at the start and end of tube bundle and another stands, with space about 4m from them.

-Stands will be welded to besides edge of bundle frames.

6.8.2: Tube bundles with the width over than 2.4m

-For carrying this type of tube bundles we use dual of painted IPE 180, with the length equal to width of tube bundle plus 100mm. (At the first, 2 IPEs weld together from both back and front surfaces at 3 points.)

-This stands will be fixed at the start and end of tube bundle and another stands, with space about 4m from them.

-Stands will be welded to besides edges of bundle frames.

- **Wooden plate is placed on the finned tube of tube bundle**
- **Motor, fan, vibration switch, belt and pulley... are packed in a wooden box.**



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7. PACKING PROCEDURE FOR STRUCTURAL PARTS

All small structural parts together with belt and spanner and then fix in the pallets. and large parts like columns or fan ring parts will be fix in pallets separately. (As shown in below pictures).

- Columns, walkways, ladders are packed with proper observance of the color protection quality and depending on the dimensions of the equipment





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8. Small Parts, Tools and spare Parts

Small loose parts shall be tagged and packed in a separate, sturdy wooden box; any such box shall be shipped with main equipment being securely attached to the main skid or within the main box.



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Packing, Marking & Shipping Procedure for Compressor Skid



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1. Purpose

This specification defines the minimum requirements and procedures for protecting equipment and materials during export shipment. It is intended to serve as a minimum requirement guide and will depend on use of Vendor's judgment to determine if physical characteristics of items being packed will require more than these minimum standards to ensure safe arrival at their destination. When portions of these instructions are not applicable, the best commercial export packing methods to attain comparable protection shall be used. In all cases, materials will be prepared for shipment to withstand multiple handling, outside storage, exposure to rain, dust and salt spray.

2. General

2.1 Scope

This instruction providing the packing and marking information is applicable to the Gohar Ofogh Industrial park- made by DELTA GMBH. The equipment shall be nude packed and spare parts shall be packed by wooden box.

3. Nude Packed

3.1 Firstly, all instruments, Junction Boxes and Local Control Panels will be bubble wrapped the equipment by plastic film and firm the film by adhesive tape to protect the Instruments and Boxes from steam.

3.2 It is designed with sufficient flexible and indispensable major and super parts, pulled tightly by steel wire rope from above to avoid it rolling along moving.

3.3 Skids will be shipped as Nude pack and on their own supports in Container.

4. Boxes

The construction and reinforcing of a wooden box depends upon the size of the box and the weight of its contents. Following are minimum requirements for various boxes.

(a) To 140 kg

Box shall be made of a minimum of 1.5 cm nominal lumber or 0.7 cm plywood sheathing, 4x 8cm nominal skids, and 2x 8cm frames with completely cleated ends.

All boxes over



22.6 kg to be

skidded.

(b) 140 to 450 kg

Box shall be made of a minimum 1.8 cm nominal lumber, or 0.9 cm plywood sheathing with 4 cm nominal decking and 4 x 8 cm nominal skids. Box to have cleated ends, with 4 x 8 cm or 2x 8 cm battens. Plywood boxes shall be constructed with uprights set on 60.9 cm centers. All seams should be backed with an upright or brace.

(c) 450 to 4500 kg

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Box shall be constructed with a 8 x 8 cm nominal skid base, 4 cm nominal floor, 2cm nominal lumber or 1 cm plywood sheathing, with cleated ends. Top and sides to be diagonally braced, with corner posts, bracing and stiffening members of 4 x 8 cm nominal lumber. Load bearing members shall be placed as needed. Top and upper edge members of large or heavy boxes shall be reinforced with 8 x 8 cm or 10x 10 cm spreaders to prevent crushing of boxes when lifting-slings are used.

above 4500 kg

Case to be built with 14x14cm nominal long. beams, transverse runners also size on 14x14cm nominal. Plywood of 1cm thickness to cover over the long. beams to form deck side of the case base, and set dunnage timbers sized 14x14cm nominal on deck at load bearing positions to sustain the cargo load.

Side Walls construct in sort to solid timber 38x89mm frame structure with 1cm plywood cladding. Top stretcher timber sized 90x90mm to be placed on top to prevent the inwards crushing when lifting sling are used.

Plywood of 1cm thickness covers down top alongside the top stretcher timbers with battens between to form the lid construction. Spare parts and interconnecting pipe spools will be shipped in wooden box.

5. Packaging Materials

5.1 Lumber shall be new, sound and well-seasoned, knots are permitted provided they are sound and tight and do not exceed one-third of the board width. Knots shall be located as not to cause railing interference which would result in structural weakness. Lumber shall be certified completely free from bark, insect infestation and decay.





6. Packing Methods and Prohibited Materials

6.1 When consolidating materials in a box or crate, items shall be packed or nested to reduce volume as much as possible. All items shall be braced and/or cushioned as necessary within the container to prevent damage from shock, vibration and rough handling. Finished and painted surfaces will be protected from abrasion.

6.2 Small items and spare parts not secured to main item shall be separately boxed with box properly identified as to its main item.

6.3 It is necessary that all shipping containers be tightly packed. Where void appear, they will be filled with cushioning material or securely blocked off to prevent any movement of contents. Wood wool may be freely used for packing but restricted materials include:

- (a) Used sacks and sacking - including jute and Hessian.
- (b) Hay and straw - including straw envelopes.
- (c) Rice Husks.
- (d) Agricultural waste products.
- (e) Any packing materials which may have come into contact with animals or soil.

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- (f) Grass and similar matting.
- (g) Articles of peat.
- (h) Used wool packs and wool packers.

7. Protection Methods

7.1 Flange openings shall be coated with a layer of anti-corrosive material then closed off with wooden, metallic or plastic, fastened in place with tape or non-rusting devices.

7.2 Caution shall be exercised in applying preservatives so that items fabricated of leather, mica, rubber, and similar material, are not coated with the preservative compound because of the damaging effect on such items.

7.3 Shipping containers shall be constructed and sealed in a manner that shall provide maximum protection from pilferage and theft. After rust-treating and sealing, equipment shall be boxed and crated as specified in Section 4 of this specification.

7.4 No equipment & materials should be dispatched by vendor unless vendor acquires inspection release note (IRN) through purchaser's which shall be issued by owner's assigned inspection agency (TPI).

8. MARKING

8.1 Marking shall comply with the requirements of the customer.

8.2 All packages will have shipping mark. The size of letters will be normally one inches high. Markings of small shipping boxes and units will be in proportion to their size.

- Color : Black – Position : both side, - Size : 15cm x 15cm or over

8.3 The appropriate instruction for handling, transport and storage will be stenciled on outside of the package.

9. Sealing Of Packages

9.1 Upon completion of packaging in accordance with the relevant instructions, required sealing compatible with the type of package shall be applied by VENDOR. For materials packed in wooden cases, boxes, crates, pallets, and similar types of packages, sealing shall be done by using straps or special wires.



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Packing, Marking & Shipping Procedure for Chiller







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1. Scope

This Specification covers the minimum requirements for packaging, packing, marking and shipment of supplies and equipment for delivery to provide full protection against physical and mechanical damage during transit and multiple handling and possible long periods under adverse storage condition for Toase-ehe Park Sanati Gohar Ofogh Petrochemical.

2. Terms and Definitions

Owner: Toase-ehe Park Sanati Gohar Ofogh Petrochemical Co.

Vendor: Farnikan Company





3. Marking

All equipment's shall be marked for identification and preparation for shipment. Spare parts will be shipped and shall be identified with a metal tag. The tag shall be securely wired to each item with stainless steel wire. Also, it shall include the equipment tag number to which each piece corresponds.

4. Packing

Packing means to efficiently and effectively protect goods, in supplier's time schedule. Vendor is responsible for recommendations for storage of the supplies according to site conditions, which meanwhile is full responsible for any loss or damage caused through wrong marking there. Packing shall be sufficient to withstand, without irritation, rough handling during loading/unloading, sea and/or inland transport, and handling during transit, and storage depending on their type. Supplies are to be protected against both mechanical damage (shocks, rupture, breakage, loss or pilfering) and corrosion (rain, salty atmosphere, etc.).

In case, where the customer has specified their packing requirements which have been agreed by the company, then Farnikan Company follows the requirement as per customers drawing, sketch or specifications. If not, the packing procedure will be followed as detailed below.

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Flange covers shall be 6 mm steel plate attached with a minimum of four (4) full diameter bolts. A gasket shall be provided between the plate and flange. All other openings shall be plugged to prevent damage during shipment.

Where support saddles are required for the transportation of products such as vertical vessels they shall be designed and provided by the supplier incorporating the following:

Saddles shall be designed for the purpose of transporting the products.

Where appropriate, steel wrapper plates shall be supplied to distribute the load and protect the products.

Saddles shall be fitted with lifting lugs and supplied with a steel rope or flat metal strapping to secure the saddle to the products during lifting or transportation.

A packing medium that has no detrimental effect to the products treatment shall be provided for placement between products and saddle, securing ropes and/or straps.

Subject to the transport configuration and design requirements, saddles may be either of steel construction.





Where bolsters and chock blocks are required, they shall be contoured to suit the outside curvature of the products to ensure adequate and uniform distribution of loadings over the surface of the products to be supported.

All loose accessories such as stud bolts, gaskets, plugs, tubes shall be packed and labeled in wooden boxes.

All movable parts such as instruments shall be temporarily packed and/or blocked (by wood sub-bracing) to prevent damage during shipment. All equipment shall be suitable braced or cushioned necessary to prevent distortion during transportation.

All threads of bolts including exposed parts shall be coated with a metallic base waterproof lubricant to prevent galling in use and aqueous corrosion during testing, shipping and storage.

Test holes in reinforcing pads shall be left open for use as tell-tale holes. They shall be filled with grease after hydrostatic test and prior to shipment.

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Equipment shall be shipped completely assembled and shall be clearly identified by painting or dye stenciling with equipment number in a conspicuous location on the shell or head.

Vendor (FPA) commissioning spare parts, two years' spare parts and special tools (if any) shall be packed separately.

The goods shall be dried, cleaned internally and externally, removed from all welded spatter, scale, rust, cuttings, fittings, etc., as well as any all-foreign material.

Unless otherwise specified, after hydro testing, operation, and/or performance test, all fluids, i.e., lubricating oil, fuel oil water, etc., shall be completely drained from all pipelines, tanks, vessels, jacketing, piping, etc., and wiped or blown dry.

The materials shall be protected against corrosion during transit by coating with a recognized rust preventative. Any bolts shall be prevented against rust. Also, threads shall be mechanically protected.

Piping material shall be protected against corrosion externally and internally detailed packing procedure, especially for the parts and components in site erection which shall be approved by the Purchaser.



4.1. Applicable packing style

4.1.1. Wooden framed box or crate

The construction of wooden framed boxes or crates shall be based on Attachment #1. Wooden framed box and crate shall be made from lumber.

4.2.2. Skid mounted construction:

Large sized equipment's, such as columns, Towers, Drums, Vessels, and Reactors shall be mounted on skids with steel wire ropes or flat steel bars.

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5. Loading

In case, where the customer has specified the loading sketch, FARNIKAN COMPANY follows the requirement as per customers drawing, sketch or specifications. If not FARNIKAN COMPANY will consider specific design for temporary saddles for vertical items while trunnion calculations have been implemented in equipment's' specific "Lifting Calculation Book" documents.

6. Shipping

Unless otherwise specifically requested, the supplier shall always ensure that the products are to the address as shown in the contract and individual packages are marked where an order line has multiple final delivery locations, the products shall be packaged and marked separately to suit. A shipping unit may be defined as: carton, crate, box, steel section, pallet and etc.

7. Safety

The Supplier shall ensure all products are packed to avoid personal injury and damage to equipment and property.



Supplies are to be protected against both mechanical damage (shocks, rupture, breakage, loss or pilfering) and corrosion.

Silica gel or other approved desiccant shall be strapped inside the shroud, but shall not come into contact with the paint work.

8. Packing list distribution

Two (2) copies of the packing list in waterproof plastic envelope must be securely nailed under a steel sheet on the outer surface of the first package of the batch with

the associated detailed item list corresponding to the package, as per indication in ATTACHMENT#2.

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Two (2) copies of the detailed item list shall be placed in waterproof plastic envelope inside of each package. Another copy in a waterproof plastic envelope shall be placed outside of the package under a steel sheet.



Packaging lists shall contain no less than the following information

- Contract or P.O. number.
- Tag/Equipment number.
- Supplier’s name.
- Contract item number.
- Description of contents.
- Total packages and package number.
- Supplier reference number.
- Package dimensions, gross and net weights.
- Destination address.

Freight containers shall have delivery dockets and packing lists placed in weather proof envelopes and attached to both the internal wall and to the outside of the non-opening door. Packing lists may be placed in package one of multiple packages when the outer surface is marked “Packing List Enclosed”. Packing lists attached to the outside of a package must always be placed within a waterproof envelope.

9. Packing inspection

The packing process / procedure shall be inspected by the client, or an authorized third-party inspector appointed by the client during all stages of packing work.

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Vendor grant inspector(s) for PSI (Pre-Shipment inspection) to access to vendor's shops or his sub-supplier's shops. Besides, vendor assist inspector or purchaser to perform PSI and shall follow the Inspector's instructions for performance of PSI.

10. Preparation for shipment

10.1. All water, oil or other liquids used for cleaning or hydrostatic testing shall be completely drained from all units before shipment. The unit shall be dried when water is used for testing.

10.2. All equipment's shall be shipped in the "as test" condition, so that no further hydrostatic testing needs to be performed after installation.





10.3. Test holes in reinforcing pads shall be left open for use as tell-tale holes. They shall be filled with grease after hydrostatic test and prior to shipment. However, vent holes shall be filled by welding.

10.4. Pre-shipment inspection of the packing shall be carried out before any shipment by an approved third-party inspectorate.

11. Attachments

11.1 Attachment#1.....Wooden Framed Box or Crate

11.2 Attachment#2..... Content Packing List Form

 	Toase-eh Park Sanati Gohar Ofogh Petrochemical Co. CONCEPTUAL, BASIC and DETAIL DESIGN ENGINEERING OF STYRENE PARK OFFSITE		 
	Document Title: Packing, Shipping and marking procedure		
	Document No.: EI027-HSE-VD – GE– PRO– 005- R1	Rev. R1	Page 28 of 31

Attachment#1: Wooden framed Box or Crate CASE



Toase-eh Park Sanati Gohar Ofogh
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**CONCEPTUAL, BASIC and DETAIL DESIGN
ENGINEERING OF STYRENE PARK OFFSITE**

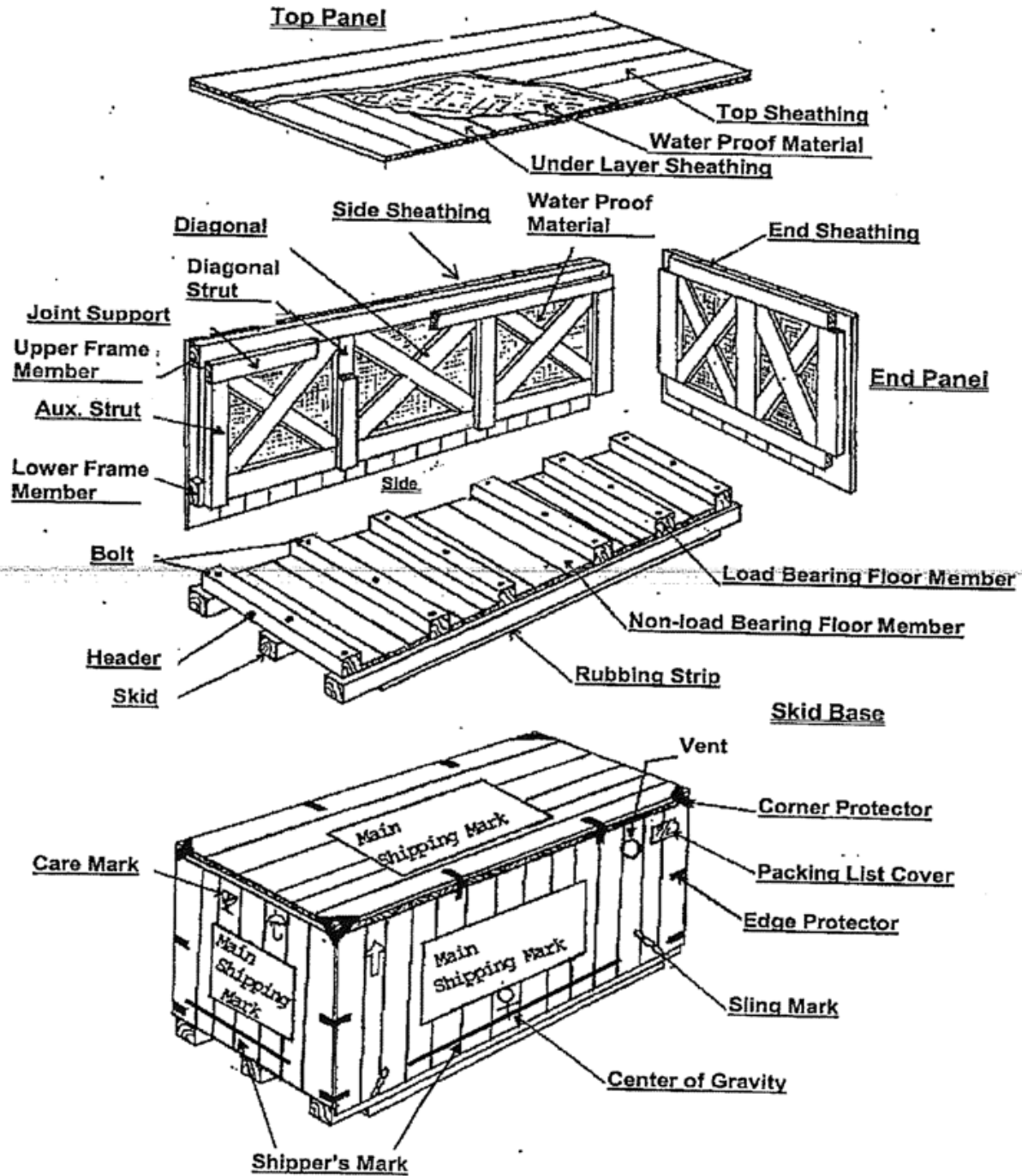


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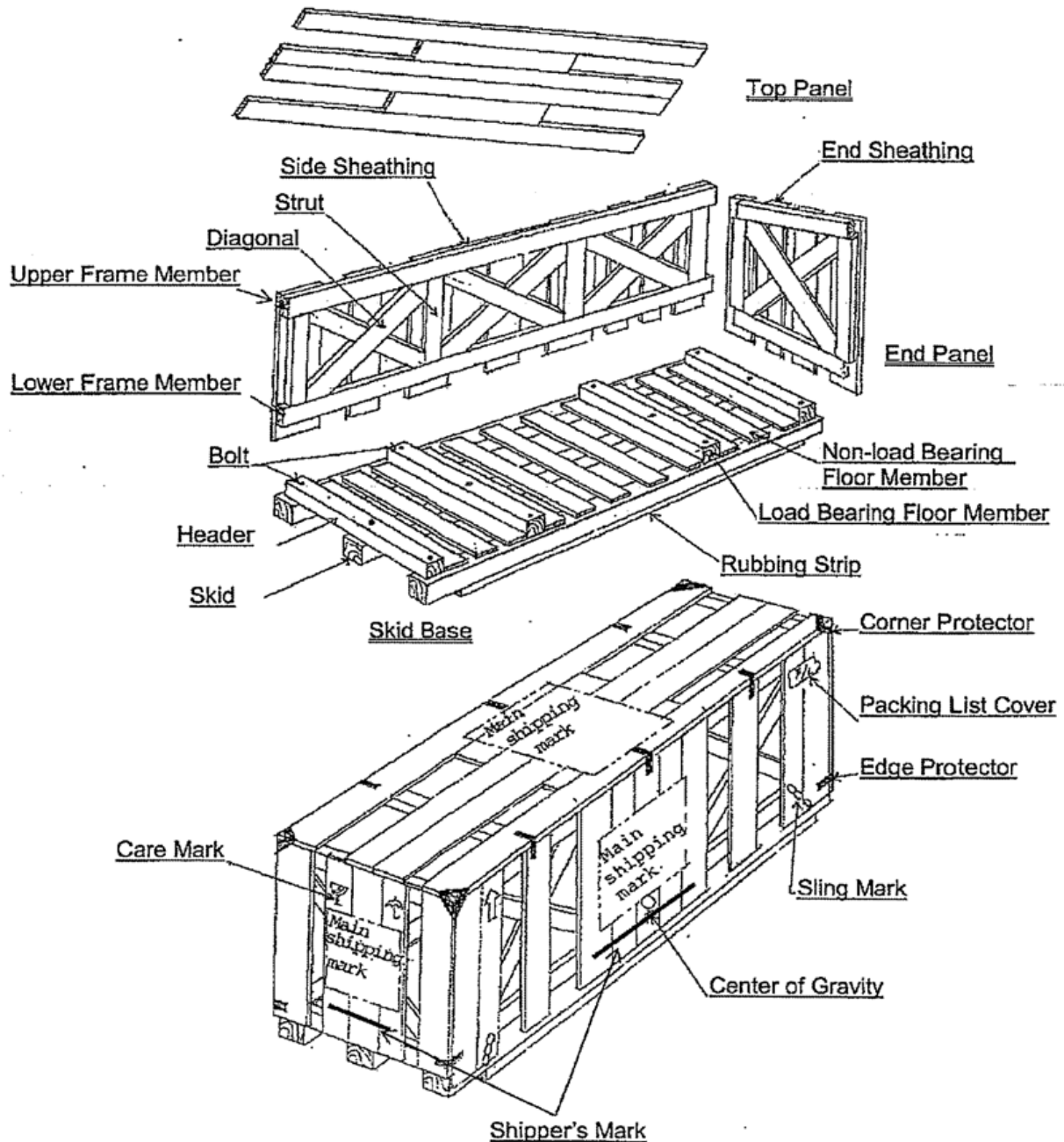
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Attachment#1: Wooden framed box or Crate



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Attachment#2: Packing List Format

 		Project: CONCEPTUAL, BASIC and DETAIL DESIGN ENGINEERING OF STYRENE PARK OFFSITE			  						
Contract No.: XXXXXXXXXX		Packing List			Project No.: XX000						
Date: 00-XXX-00		Project Document No.: FPA-PPC-XX000-LST-XXX-00			Rev.: 0 Page: 1 of 1						
Vendor: Shiraz, Farnikan Pars Avin				Purchaser: XXXXXXXXXXXXXXXXXXXX							
Origin: Shiraz, Farnikan Pars Avin				Destination: XXXXXXXXXXXXXXXXXXXX							
Packing List No.: 0				Package QTY: 0							
Row	Package No.	Package Type *	Tag No.	Description	QTY	Net Weight (kg)	Gross Weight (kg)	Dimension (mm)			Remark
								L	W	H	
Total					0	0.00	0.00				
PPC Dept.:				QC Dept.:				3rd Party Inspector			
Name:				Name:				Name:			
Date:				Date:				Date:			
Sign:				Sign:				Sign:			
<small>* P=Pallet / WB=Wooden Box / MB=Metal Box / CB=Carton Box / G=Gunny / BP=Bubble Plastic / PC=Plastic / CP=Cellophane Plastic / PB=Plastic Bag / SS=Steel Strap / SC=Steel Cover / F=Foam / MG=Metal Gallon / L=Loose</small>											
Adress: Farnikan, N17, Sanat 6, SEEZ Shiraz, Iran						Doc. No.: PPC-FRM-00-001					
Contact Info.: www.farnikan.com / info@farnikan.com / +98-71-91005567						Rev. Date: 04.02.05-00					