

Technical Specification
For
20' x 8'x 8'6" ISO Type
Dry Cargo Steel Container
(20'GP)

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江苏泰润物流装备有限公司

JIANGSU TERCEL LOGISTICS EQUIPMENT CO. LTD

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Scope

This specification covers design, construction, materials, testing, inspection and prototype container. The container is built in accordance with the requirements of 20' x 8' x 8'6" type steel dry freight containers by Jiangsu Tercel Logistics Equipment Co., Ltd. (JTLE).

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CONTENTS

1. GENERAL	2
2. APPROVAL AND CERTIFICATES	2
3. HANDLING	3
4. TRANSPORTATION	3
5. DIMENSIONS AND RATINGS	3
6. CONSTRUCTION	4
7. PRESERVATION	10
8. MARKINGS	11
9. TESTING AND INSPECTION	11
10. DOCUMENTS SUBMISSION	13
11. GUARANTEE	13
12. MATERIALS	14



1. General

1.1 Operational Environment

The container will be designed and constructed for the transportation of general cargo on sea (above or under deck) and on land (road or rail) throughout the world, and will be suitable for the environmental conditions imposed by those modes of transport. All materials used in the construction will be able to withstand extreme temperature ranging from -40°C (-40°F) to 70°C (158°F) without effect on container's strength and watertightness.

1.2 Standards, Regulations and Rules

1.2.1 Standards and Regulations

Containers shall comply with following in their latest editions (in part) :

- 1) ISO/TC-104
 - 668 - Series 1 freight containers-Classification, external dimensions and ratings
 - 6346 - Coding, identification and marking for freight containers
 - 1161 - Specification of corner fittings for series 1 freight containers
 - 1496/1 - Specification and testing of series 1 freight containers.
Part 1 : General cargo containers for general purposes
 - 830 - Freight containers-Terminology.
- 2) The International Union of Railway (UIC) code 592.
- 3) The Customs Convention on the International Transport of Goods (TIR).
- 4) The International Convention for Safe Containers (CSC).
- 5) Transportation Cargo Containers and Unit Loads Quarantine Aspects and Procedures by Commonwealth of Australia Department of Health. (TCT)

1.2.2 To satisfy the requirements of rules of BV, ABS, GL,LR or CCS Classification Society.

2. Approval and Certificates

2.1 Classification Certificate

All the containers shall be certified for design type and individually inspected by Classification Society.

2.2 Production Certificate

The Production Certificate of series containers to be issued by the Classification Society. The Society's seal shall be provided.

2.3 UIC Registration

All the containers will be registered & comply with the International Union of Railways.

2.4 Customs Certificate (TIR)

Customs' Approval and Certificate to be issued by the Customs.



2.5 CSC Certificate

All the containers will be certified and comply with the requirements of the International Convention for Safe Containers.

2.6 TCT Certificate

Certificate of timber treatment to the requirement of Australia Department of Health.

3. Handling

The container will be constructed to be capable of being handled without any permanent deformation which will render it unsuitable for use or any other abnormality during the following conditions:

- 1) Lifting, full or empty, at the top corner fittings vertically by means of spreaders fitted with hooks, shackles or twistlocks.
- 2) Lifting, full or empty, at the bottom corner fittings using slings with appropriate terminal fittings at slings angle of forty-five (45) degrees to horizontal.
- 3) Lifting, full or empty, at two fork pocket by fork lift truck.

4. Transportation

The container shall be constructed to be suitable for transportation for following modes without any permanent deformation which will render the container unsuitable to use or any abnormality.

4.1 Marine :

- **In the ship cell guides:** Seven (7) high stacked (max gross weight 30,480 kg).
- **On the deck:** Four (4) high stacked and secured by suitable vertical and diagonal wire lashings.

4.2 Road - On flat bed or skeletal chassis:

Secured by twistlocks or the equivalent at the four bottom corner fittings.

4.3 Rail - On the flat cars or special container car:

Secured by twistlocks or the equivalent at the four bottom corner fittings.

5. Dimensions and Ratings

5.1 Dimension

	<u>External</u>	<u>Internal</u>
	<u>Dimensions</u>	<u>Dimensions</u>
Length	6,058 (0, -6) mm	5,898 (0, -6) mm
Width	2,438 (0, -5) mm	2,352 (0, -5) mm
Height	2,591 (0, -5) mm	2,393 (0, -5) mm

No part of the container will protrude out beyond the external dimensions mentioned above.



Maximum allowable difference between two diagonals on any one of the following surface are as follow :

Roof, Bottom and Side Diagonals	 13 mm
Front and Rear Diagonals	 10 mm

5.2 Door Opening

Width	 2,340 (0, -5) mm
Height	 2,280 (0, -5) mm

5.3 Fork pocket

Width	 360 mm
Height	 115 mm
Center distance.....	2080 mm

5.4 Inside Cubic Capacity

33.2cu.m	1,172 cu.ft
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5.5 Rating

Maximum Gross Weight	 30,480 kg	67,200 lbs
Tare Weight	 2,180 kg	4,810 lbs
Maximum Payload	 28,300 kg	62,390 lbs

5.6 Corner Protrusions

- 1) The upper faces of the top corner fittings will protrude above the highest level of the roof construction including corner plate by minimum 6 mm.
- 2) For the containers under empty condition the lower faces of the cross members in their bases including their end transverse members shall be on a plane located at least 12.5 (-1.5, +5) mm above the lower faces of the bottom corner fittings.
- 3) The outer side faces of the corner fittings will protrude from the outside faces of the corner post by minimum 3 mm. The outer side faces of the corner fittings will protrude from the outside faces of the side walls by nominal 7 mm and from the outside faces of the front end wall by 7.4 mm.
- 4) For the containers under the condition such as the load equal to 1.8R-T is uniformly distributed over the floor, no part of the container base will deflect by more than 6 mm below the lower faces of the bottom corner fittings.

6. Construction

6.1 General

The container will be constructed with steel frames, fully vertically corrugated steel side and end walls, die-stamped corrugated steel roof, flooring, corrugated double hinged doors and ISO corner fittings at eight corners. All steelworks will be built up by means of automatic and



semi-automatic CO₂ gas arc welding (MAG welding). All exterior weldings including that on base structure will be continuous to give perfect watertightness. Interior welds will be intermittent with a minimum bead length of 25 mm for every 200 mm. All the welds, even spots, will have full penetration without undercutting or porosity.

6.2 Corner Fittings

Corner fittings will be designed in accordance with ISO/1161 standard, and manufactured at the workshops approved by the classification society.

6.3 Base Frame

The base frame will be composed of two (2) bottom side rails, a number of crossmembers, a pair of fork pockets and wood floor.

6.3.1 Bottom Side Rail

Each bottom side rail is built of a steel pressing made in one piece. The bottom flange face outwards so as to be easily repaired and hard to corrode.

Qty. : 2 pcs
Shape : "C" section
Dimension : 162 x 50 x 30 x 4.5 mm.

6.3.2 Crossmember

The crossmembers are composed of a number of small pressed channel section and some large one located beneath each board joint of the plywood, which are placed at certain center distance.

Shape : "C" section
Small one : 122 x 45 x 40 x 4.0 mm, Qty. : 16
Large one : 122 x 75 x 40 x 4.0 mm, Qty. : 2

6.3.3 Fork Pocket

One pair of fork pockets will be provided in accordance with ISO requirements for loaded handling. Each fork pocket is constructed with two adjacent crossmembers, a top plate and two bottom end plates. A angle stiffener plate will be welded to each opening of fork pocket.

Top plate : 3.0 mm thick
Bottom plate : 6.0 mm thick, Depth : 200 mm
Stiffener plate : 4.0 mm thick

6.3.4 Bottom Reinforcement Plate

Reinforcement plates will be welded at two end of bottom side rail.

Dimension : 200 x 153 x 4.0 mm

6.4 Front End

The front end will be composed of front end frame and corrugated end wall, which are welded together as a sub-assembly.

6.4.1 Front End Frame

The front end frame will be composed of two corner posts, one front



header, one front sill and four corner fittings.

6.4.1.1 Corner Post

Each corner post is made of a 6 mm thick section steel pressing to ensure the suitable strength, light-weight and easy maintenance.

6.4.1.2 Front Header

The front header is constructed with square hollow section steel at lower part and steel plate at upper part.

lower part : 60x60x3.0 mm thick

upper part : 3.0 mm thick

6.4.1.3 Front Sill

The front sill consists of a "C" section steel pressing with vertical web as stiffener.

Front rail : 4.0 mm , Qty. : one piece.

web : 4.0 mm thick, Qty. : 3 pcs.

6.4.2 Front End Wall

The front end wall is composed of steel sheet fully vertically corrugated into trapezium section, butt joint together to form one panel by means of automatic welding.

Thickness : 2.0 mm

Corrugation dimension- Outer face : 110 mm

Depth : 45.6 mm

Inner face : 104 mm

Slope : 18 mm

6.5 Rear End

Rear end is composed of Rear End Frame which consists of two corner posts, one door header with header plate, one door sill and four corner fittings, which are welded together as a sub-assembly, and Door Systems which are with locking devices.

6.5.1 Corner Post

Each corner post is constructed from an inner part of channel shaped hot-rolled section steel and an outer part of steel pressing, welded together to form a hollow section to ensure the door opening and suitable strength against the stacking and racking force. Four (4) sets of hinge pin lugs are welded to each outer part of the corner post.

Inner part : 113 x 40 x 12 mm

Outer part : 6.0 mm thick

6.5.2 Door Header

The door header is constructed from a lower part of a "U" shaped steel pressing with internal stiffener ribs and an upper part of steel rear header plate, they are welded together to form a box section to provide a high rigidity.

lower part : 4.0 mm thick

upper part : 3.0 mm thick

Rib : 4.0 mm thick, Qty. : 4 pcs.



6.5.3 Door Sill

The door sill is built of a special channel section steel pressing with internal ribs as stiffeners at the back of each cam keeper. The upper face of the sill has a slope for better drainage and the highest part is on the same level as the upper face of the wooden floor.

- | | | |
|-------------------|----------------|----------------------|
| a) Door sill | : 4.5 mm thick | Slope : 1:10 approx. |
| b) Stiffener ribs | : 4.0 mm thick | Qty. : 4 Pcs. |

6.5.4 Door Systems

Doors will consist of two door leaves, each leaf with two locking devices, four hinges and pins, seal gaskets and the door holders. The doors will be installed by hinge pins to the rear end frame and capable of swinging about 270 degrees.

6.5.4.1 Door Leaves

Each leaf consists of door panel, steel door frame which consists of horizontal (upper & lower) and vertical (inner & outer) members. They are welded together to form the rectangular door leaves. The door are so arranged that the left leaf can not be opened without displacement of the right leaf.

- 1) Door panel : With 3 corrugations.

Depth	: 45.6 mm
Inner face	: 110 mm
Slope	: 18 mm
Panel thickness	: 2.0 mm
- 2) Door frame :
 - a) Horizontal door member : 150 x 50 x 3.0 mm, channel section,
 - b) Vertical door member : 100 x 50 x 3.0 mm RHS

6.5.4.2 Hinges and Pins

Four forged hinges, providing with bushed hole, are welded to each door leaf. Each door is installed by hinge pins, washers and bushings.

- | | |
|---------|--------------------------------------|
| Washer | - Material : Stainless steel. |
| | Location : Under the bottom of hinge |
| Bushing | - Self-lubricating synthetic |
| Pin | - Material : Stainless steel. |

6.5.4.3 Locking Devices

Two locking bars are of steel tube with handles, anti-racking rings and cam ends, and fixed to each door leaf with bolts / nuts and six huck bolts at TIR locations, by top and bottom bearing brackets and bar guide brackets. The bars are suspended in bearing brackets with bush of self-lubricating synthetic material.

The EPDM shim will be placed over the holes on the door for fastener
Cam-keepers are welded to the door header and sill.

- a) Locking device type : "SJ-66M" or EQ without segura cam and keeper
- b) Locking bars treatment : Hot-Dipped galvanized (75 Microns)

6.5.4.4 Seal Gaskets



The door seal gaskets (black color) are of EPDM rubber assembled by rivets at an about 150 mm pitch, using strip retainers and adhesive sealant on the back.

Gasket's shape : Special "J-C" type
 Retainer : Stainless steel
 Rivet : Stainless steel

6.5.4.5 Door Holder and Receptacle

A door holder per door, made of mixed nylon rope, is tied to the center side locking rod & the receptacle (door hook) is welded to each bottom side rail to remain the door at the open position.

6.6 Side Wall Assembly

6.6.1 Top Side Rails

Each top side rail is made of square hollow section steel.

Rail : 60x60x3.0 mm

6.6.2 Side Walls

Each side wall will be composed of a number of sheets for the intermediate (inner) parts and outer panels at each end of side wall, fully vertically corrugated into trapezium section, butt welded together to form one panel by automatic welding.

a) Outer panel	: 2.0 mm thick	Qty. : 2 Pcs/side
b) Inner panel	: 1.6 mm thick	Qty. : 3 Pcs/side
c) Trapezium	- Depth : 36 mm	
	Outer face : 72 mm	Slope : 68 mm
	Inner face : 70 mm	Pitch : 278 mm

6.7 Roof

The roof will be constructed by several die-stamp corrugated steel sheets with a certain upwards camber at the center of each trough and corrugation, these sheets are butt jointed together to form one panel by automatic MAG welding.

Corrugation Shape - Depth : 20 mm, Pitch : 209 mm,
 Inter face : 91 mm, Slope : 13.5 mm,
 Outer face : 91 mm.
 Camber upwards : 5 mm

Panel thickness : 2.0 mm

Sheet Qty. : 5 pcs

6.7.1 Roof Reinforcement Plate

Four 3.0 mm thick reinforcement plates shall be mounted around the four corner fittings.

6.8 Floor

6.8.1 The Floor Boards

The floor consists of bamboo or plywood. The floor is treated according to the Commonwealth Department of Health, Australia.



Bamboo/plywood thickness	: 28 mm
Bamboo/plywood moisture content	: Less than 14 %
Bamboo/plywood ply number	: Min.19 plies

6.8.2 Arrangement and Fixing

The floor boards are laid on the crossmember with a pre-blasted, painted, free floating flat steel bar at the center and two pressed steel floor angles along both side rails. The floor boards are tightly secured to each crossmember with countersunk self-tapping steel screws. The heads of the floor screws are countersunk below the level of the upper surface of the floor by 1.5 mm to 2.5 mm, and coated with waterborn coating .

Screws	M8 x 45 x Φ16 (head), Electro zinc plated
Screws' Qty.	6 Pcs/end row, 4 Pcs/other
Floor angle	25 x 25 x 3 mm
Floor centre rail	50 x 4 mm, Painted with epoxy zinc topcoat

6.9 Special Features

6.9.1 Customs Seal Provision

Customs seal provision are made on each locking handle and retainer in accordance with TIR requirements by rivets.

6.9.2 Lashing Rings

- 1) Lashing rings are welded to each bottom and top side rail at corresponding recessed area of side wall.
Lashing ring Qty./ Each bottom or top side rail : 5, Total : 20
- 2) Lashing bars are welded on each rear & front corner post slot.
Lashing bars Qty. / Each front corner post : 2, Total : 4
Lashing bars Qty. / Each rear corner post : 2, Total : 4
- 3) Capabilities of pull load of every lashing point are as following :
 - a) Lashing rings on the side rails : 1,500 kg/each
 - b) Lashing bars on the corner posts : 1,500 kg/each
- 4) Treatment of lashing ring / bar : Electro zinc plated

6.9.3 Sill Cut-Outs

200 x 75 x 9.0 mm channel section steel recesses are provided in each ends of rear sill and front sill adjacent to the bottom fitting to prevent damage due to any twistlock misalignment.

6.9.4 Shoring slot

A shoring slot, having a size of 60 mm width x 40 mm depth is provided on each rear corner post so that 2 1/4" thick battens can be arranged to be able to prevent doors from damage due to shifting cargo.

6.9.5 Ventilators

Three (3) ventilators with EPDM seal gasket are supplied on each side wall, **two (2)** ventilators are supplied on rear door and **two (2)** ventilators are supplied on front wall, fixed by three aluminum huck-bolt rivets, the



seal is to be applied on the edges except the bottom side of the ventilator, after the completion of paint.

Quantity : 3 / each side wall
2 / front wall
2 / rear door

Material : ABS Labyrinth Type.

6.9.6 locking box

A locking box will be provided on the rear door .

7. Preservation

7.1 Surface Preparation of the Steelwork

- 1) All the steel surface prior to forming or after will be degreased and shot blasted to Swedish Standard SA 2.5 to obtain the surface roughness at 25 to 35 microns which can result in the removal of all the rust, dirt, mill scale and all other foreign materials.
- 2) Locking rod assemblies, which are welded with gear cams, bars holder and handle hinges, are hot dipping galvanized (Thickness: 75 microns).
- 3) All fasteners such as bolts/nuts, washers, self-tapping screws, which are not mentioned in this Spec. will be electro zinc plated to 13 Microns.
- 4) Sealant

Each perimeter of the floor, all the overlapped joints of inside, all the holes for bolts and nuts and all the places where may leak water will be sealed to give prevention against water entry.

Sealant Materials : a. Chloroprene (Cargo contact area)
b. Butyl (Hidden parts)

7.2 Coating

7.2.1 Prior to Assembly

All steel surfaces will be coated with primer paint immediately after being shot-blasted.

7.2.2 After Assembly

After assembly before 2nd blast, a final inspection will be performed to identify, remove, or correct spatter, contamination, and weld defects. All weld joints will be shot blasted to remove welding flux, spatters, burnt primer, and other contaminants. After 2nd blast, all units will have a light check performed to identify pinholes or weld defects. Immediately after the light leak check the units will be coated with zinc rich primer.

7.2.3 All the surface of the assembled container will have coating system as follows:

Process	Paint Name	DFT (μ)
Exterior Surface	Zinc rich primer	30
	Epoxy primer	40
	PU top coating (2 Components RAL TBA)	50



		Total : 120
Interior Surface	Zinc rich primer	30
	Epoxy high build coating (RAL 7035)	40
	Total : 70	
Under Structure	Zinc rich primer	30
	Bitumen (Hempinol 1022-1999 / ACST8508 / DCC8W /Ivan 512 /NBJL L21-B / Tectyl 121B / Dinitrol 4941k)	200
	Total : 230	

Zinc rich primer and epoxy topcoat are not applied to the floor.

7.2.4 The paint suppliers are **Hempel or Chugoku**.

8. Markings

8.1 Lettering

The markings will be designed decal and arranged according to buyer's requirement. The markings consist of the following contents :

- 1) Owner's emblems according to owner's design.
- 2) Owner's code, serial number and check digit (outside & inside)
- 3) Size and type code (outside)
- 4) Weight details (on door)
- 5) Other marking : According to owner's requirements.
- 6) Material of marking : Self-adhesive, high tensile PVC film

8.2 Consolidate Plate

8.2.1 The containers will bear marking plate in accordance with the requirements of the Classification Authorities and owner such as mentioned in section 2.2 in this specification. The plate will be permanently riveted to the specified position by rivets and sealant.

Plate material : Stainless steel
 Plate treatment : Chemically etched & enameled
 Rivets material : Stainless steel
 Plate thickness : 0.8 mm

8.2.2 Contents of the Plate :

- 1) Owner's plate (name and address).
- 2) CSC approval No.
- 3) Customs approval No.
- 4) Australian wood treatment.

The engraved letters on this plate are as following :

IM : Immunization

XXXX : The name of preservative.

XXXX : The time of immunization.

- 5) Date of manufacture (year and month - engraved or stamped)
- 6) Owner's serial number (stamped)
- 7) Owner's model number.

9. Testing and Inspection

**9.1 Proto-type Container**

Proto-type container to be manufactured in accordance with this specification and shall be tested according to procedures described in the ISO 1496/1 and the Classification Society's requirements. The containers will be fabricated & tested in advance of the mass production.

9.2 Container in Mass Production

Every container in mass production shall be manufactured under effective

quality control procedures to meet the specified standards. One in every 100 of containers shall be tested for following items :

- a) Stacking test
- b) Lifting from top corner fitting test
- c) Lifting from bottom corner fitting test
- d) Floor test.

After completion, all the containers shall be subject to dimension check, door operation check, light leakage test & production type weather-proofness test. The containers shall be inspected by the surveyor of Classification Society and identified by the appropriate society seal.

9.3 The proposed criteria table for general prototype testing :

Test No.	Test Load	Method
a. Stacking	Internal Load : 1.8R-T Testing Load : 86,400 kg/post	Hydraulic cylinder load to corner post through top corner fittings. Time duration : 5 mins.
b. Lifting from Top Corner Fittings	Internal Load : 2R-T	Lifting vertically from top corner fittings. Time duration : 5 mins.
c. Lifting from Bottom Corner Fittings	Internal Load : 2R-T	Lifting from bottom corner fitting 45 degrees to horizontal. Time duration : 5 mins.
d. Lifting from Fork Pocket	Internal Load : 1.6R-T	Lifting by horizontal bars. Bar length 1,828 mm, bar width 200 mm. Time duration : 5 mins.
e. Restraint (Longitudinal)	Testing Load : 2R (R/side) Internal Load : R-T	Hydraulic cylinder load applied to bottom side rails in compression & then tension. Time duration : 5 mins.
f. Floor Strength	Truck Load : 7,260 kg	Special truck is used. Total contact area : 284 sq.cm. Wheel width : 180 mm, Wheel center distance : 760 mm.
g. Wall Strength (Front & Door)	Test Load : 0.4P	Compressed air bag is used. Time duration : 5 mins.



h. Side Wall Strength	Test Load : 0.6P	Compressed air bag is used. Time duration : 5 mins.
i. Roof Strength	Test Load : 300 kg	Applied area will be the weakest place of 600 x 300 mm longitudinal & transverse. Time duration : 5 mins.
j. Rigidity (Transverse)	Test Force : 15,240 kg (150 kn)	Hydraulic cylinder will be applied to front top end rail & door header through top corner fittings, each time pulling & pushing. Time duration : 5 mins.
k. Rigidity (Longitudinal)	Test Force : 7,620 kg (75 kn)	Hydraulic cylinder load will applied to top side rail through top corner fittings. Time duration : 5 mins.
l. Weather proofness	Nozzle : 12.5 mm (inside dia.) Pressure 100 kpa (1 kg/sq.cm) :	Distance 1.5 m : Speed : 100 mm/sec

Note : R - Maximum gross weight
T - Tare weight
P - Maximum payload

9.4 Inspection

9.4.1 Materials and Component Parts Inspection

All the materials and components will be inspected by Quality Control Dept. to make sure that the most suitable and qualified components being used for the containers and to meet this specification.

9.4.2 Production Line Inspection

Every containers will be manufactured under effective Quality Control procedures, and every production line of the factory will be inspected and controlled by the Quality Control Dept. to meet this specification.

10. Documents Submission

10.1 When Contracting

JTLE shall submit the specification with following drawing (3 sets) :

General arrangement	Base assembly
Front end assembly	Rear end assembly
Side wall assembly	Marking arrangement

10.2 When delivery

The owner shall inform JTLE all the documents needed two weeks before the date of delivery and JTLE will be submit them to the owner.

11. Guarantee

The guarantee period will commence at the day of the container being accepted by the classification society, or owner's representative (if applicable), in the Manufacturer's factory.

**11.1 Paint Guarantee**

The paint system applied to the container surface shall be guaranteed against corrosion and/or paint failure for a period of five (5) years. The guarantee shall be applied to all the kinds of faults / failures affecting more than 10 % of any given part of the container and partial or total repainting shall be assured for the container(s) at the manufacturer's expense. Normal wear/tear, or corrosion caused by acid, alkaline solution or result from damages by abrasion impact or accident are excluded. Corrosion is defined as the rusting exceeding RE3 (European scale of degree of rusting).

11.2 Other Guarantee

All containers shall be guaranteed against any defects or omissions in construction, poor workmanship, or defective materials for a period of one (1) year. Any damages caused by mis-handling, mis-securing, mis-loading, impact and other natures of accident are excluded. The self-adhesive film decal shall be guaranteed seven (7) years.

12. Materials

The main materials used in construction are as follows or approved equivalent :

Where used	Materials
<u>Front End Assembly :</u>	
Front corner post	SPA-H
Front panel	SPA-H
Front header	SPA-H
Front sill	SPA-H
<u>Base Assembly</u>	
Bottom side rail	SPA-H
Crossmember	SPA-H
Fork pocket	SPA-H
Floor centre rail	SPA-H
<u>Rear End Assembly</u>	
Rear corner post (outer)	SPA-H
Rear corner post (inner)	SM50YA or SS490
Door sill	SPA-H
Door header lower	SPA-H
Rear header cap	SPA-H
Door panel frame	SPA-H
Door panel	SPA-H
Door hinge	S20C
Door hinge pin	Stainless steel
Locking cam, cam keeper	S20C
Locking rod	STK400
Door gasket	EPDM



Gasket retainer	Stainless steel
Washer	Stainless steel
Rivet	Stainless steel
Shim	EPDM
Corner fitting	SCW480
<u>Side Wall Assembly</u>	
Side panel	SPA-H
Top side rail	SPA-H
Lashing bar, lashing ring	SS400, Electro zinc plated
Ventilator	ABS
<u>Roof</u>	
Roof corner gusset	SPA-H
Roof panel	SPA-H
<u>Floor</u>	
Floor board	Bamboo
Floor screw	Electro zinc plated

Note :

Mechanical properties of the material mentioned as above:

Material	Yield (kg/sq.mm)	Point Tensile (kg/sq.mm)	Strength
SS400	25		41
SM50YA	29		50
SS490	29		50
JIS	28		49
SCW480			
S20C	25		42
SPA-H	35		49