

**Technical Specification**  
**For**  
**40' x 2,462 mm x 9'6" Type**  
**Dry Cargo Steel Container**  
**(TOPTAINER CPC - Slimwall 40'HC )**

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**CIMC**



**南通中集特种运输设备制造有限公司**  
NANTONG CIMC-SPECIAL TRANSPORTATION EQUIPMENT MANUFACTURE CO.,LTD.

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Prepared by : Gu HB(Aug. 22, 2007) Checked by : Zhang ZJ(Aug. 22, 2007) Approved by :Ding ZC(Aug. 22, 2007)

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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 40' x 2,462 mm x 9'6" CPC-Slimwall type steel dry freight containers by CIMC-NANTONG (including Nantong CIMC-Smooth Sail Container Co., Ltd. — NSSC & Nantong CIMC Special Transportation Equipment Manufacture Co., Ltd. — NCSE).

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## **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 -35°C (-31°F) to 60°C (140°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 Customs Convention on the International Transport of Goods (TIR).
- 3) The International Convention for Safe Containers (CSC).
- 4) 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 GL or BV 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 TCT Certificate**

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

### **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.

**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 thirty (30) degrees to horizontal.

**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 Dimensions</u>
	<u>Dimensions</u>	
Length	12,192 (0, -10) mm	12,095 (+3, -4) mm
Width (overall)	2,462 (+1, -5) mm	2,422 (+1, -4) mm
Width (over-end frames)	2,438 (0, -5) mm	
Height	2,896 (0, -5) mm	2,692 (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	..... 19 mm
Front and Rear Diagonals	..... 10 mm



**5.2 Door Opening**

Width .....	2,400 (0, -5) mm
Height .....	2,584 (0, -5) mm

**5.3 Gooseneck Tunnel**

Length .....	3,309 mm
Width .....	1,029 (+3, 0) mm
Height .....	120 (0, -3) mm

**5.4 Inside Cubic Capacity**

78.9 cu.m	2,785 cu.ft
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**5.5 Rating**

Maximum Gross Weight .....	34,000 kg	74,960 lbs
Tare Weight .....	4,250 kg	9,370 lbs
Maximum Payload .....	29,750 kg	65,590 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 17 mm above the lower faces of the bottom corner fittings.
- 3) 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, wooden 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 CO<sub>2</sub> 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 150 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 and a gooseneck tunnel, which are welded together as a sub-assembly.

### 6.3.1 Bottom Side Rail

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

Qty.	:	2 pcs
Shape	:	Double "Z" section
Dimension	:	325 x (20+36) 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 with four (4) vertical webs located beneath each board joint of the plywood, which are placed at certain center distance.

Shape	:	"C" section	
First one	:	122 x 266 x 45 x 4.5 mm,	Qty. : 1 pcs.
Small one	:	122 x 45 x 45 x 4.5 mm,	Qty. : 24 pcs.
Large one	:	122 x 75 x 45 x 4.5 mm,	Qty. : 3 pcs.
Web	:	4.0 mm thick	

### 6.3.3 Gooseneck Tunnel

The gooseneck tunnel consists of one piece pressed hat section tunnel plate, a number of tunnel bow, one "C" section rear bolster with some internal stiffener and tunnel outriggers. The gooseneck tunnel is designed according to ISO standard :

- a) Tunnel plate thickness : 4.5 mm Qty. : one piece
- b) Tunnel bow thickness : 4.5 mm Qty. : 12 pcs.
- c) Bolster thickness : 6.0 mm Qty. : one piece.
- d) Stiffener web : 4.5 mm Qty. : 4 pcs.
- d) Outriggers - "C" section : 117.5 x 45 x 45 x 4.5 mm, Qty.: 7 pcs / each side.  
117.5 x 75 x 45 x 4.5 mm, Qty. : 1 pcs / each side.

### 6.3.4 Bottom Reinforcement Plate

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

Dimension : 127 mm long x 35 mm thick

## 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 constructed from an outer part of one single open "L" steel pressing and an inner part of steel plate as stiffener, welded together to form a special section to ensure the suitable strength, light-weight and easy maintenance.

Outer part	:	8.0 mm thick
Inner part	:	4.5 mm thick

### 6.4.1.2 Front Header

The front header is constructed of one "Z" shaped pressing steel plate. The inner part is extended inwards of the container certain distance with full width from front part of top corner fittings.

Front header : 4.0 mm thick

### 6.4.1.3 Front Sill

The front sill consists of a square tube upper with angle steel as the wood supports and open style front.

Front rail : 50 x 30 x 2.5 mm RHS, Qty. : one piece.

Angle : 4.0 mm thick, Qty. : 2 pcs.

Tunnel gusset : 6.0 mm thick, Qty. : 2 pcs.

Reinforcement : 8.0 mm thick, Qty. : 2 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 MAG welding.

Thickness : 3.2 mm

Corrugation dimension - Outerface :	100 mm,	Depth :	25 mm,
Interface :	86 mm,	Slope :	10 mm,
Pitch :	206 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 a pressed steel outer part with a reinforcement plate and a flat bar steel inner part, welded together to ensure the door opening and suitable strength against the stacking and racking force. Seven (7) round bar as hinge pin lugs are welded to each outer part of the corner post.

Outer part : 10 mm thick

Reinforcement plate : 10 mm thick

Inner part : 44 mm wide x 12 mm thick

Lug : 22 mm dia.

### 6.5.2 Door Header

The door header is made of one open section pressing steel plate with internal stiffener ribs at the location of the back of cam keeper. The inner part is extended inwards of the container certain distance with full width from rear part of top corner fittings.

Rear header : 4.5 mm thick

Rib : 3.2 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 is on the same level to the upper face of the wooden floor. Four angle shaped steel are to

be constructed from the ribs of cam keeper to first crossmember. Two channel section steel recesses are provided adjacent to the bottom fitting to prevent damage due to any twistlock misalignment.

- a) Door sill : 4.5 mm thick
- b) Stiffener ribs : 4.5 mm thick, Qty. : 4 pcs.
- c) Angle : 4.0 mm thick
- d) Channel section : 200 x 75 x 9 mm

#### 6.5.4 Door Systems

Doors will consist of two door leaves, each leaf with six hinges and pins, two locking devices, 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 leaf. 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 : 44 mm
  - Interface : 110 mm
  - Slope : 18 mm
  - Panel thickness : 2.0 mm
- 2) Door frame :
  - a) Vertical door member : 100 x 50 x 3.2 mm RHS (inner),  
25 x 25 x 2.0 mm RHS for L/H inner only,  
Special channel section, 4.5 mm thick for outer.
  - b) Horizontal door member : Flat bar, 60 mm wide x 8.0 mm thick.

##### 6.5.4.2 Hinges and Pins

Six pressed hinges, providing with bushed hole, are welded to each door leaf. Each door is installed by hinge pin (one piece per post) and washers.

- Hinge plate - 10 mm thick
- Hinge pipe Material : Stainless steel
- Pin - Material : Stainless steel
- Washer - Material : Stainless steel
- Location : Under the bottom of hinge

##### 6.5.4.3 Locking Devices (Bolt-on Type)

Two locking bars are of steel tube with pressed handles, anti-racking rings and cam ends, and fixed to each door leaf with huck-bolts, by top and bottom bearing brackets and one bar guide bracket. The bars are suspended in bearing brackets with bush of self-lubricating synthetic material "Nylatron".

Cam-keepers are welded to the door header and sill.

- a) Locking device type : BE 2566 MN or M (Bloxwich or made in China)
- b) Locking bars treatment : Hot-Dipped galvanized (75 microns)

##### 6.5.4.4 Seal Gaskets

The door seal gaskets (black colour) are of EPDM rubber assembled by rivets at an about 145 mm pitch, using strip retainers and adhesive sealant on the back.

Gasket's shape	: "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.

#### 6.5.4.6 Shim

The EPDM shim will be placed over the holes on the door for fastener.

Thickness : 1 mm

### 6.6 Side Wall Assembly

#### 6.6.1 Top Side Rails

Each top side rail is used a steel flat bar.

Rail : 75 x 12 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 MAG welding.

- a) Inner panel : 2.0 mm thick, Qty. : 9 pcs / each side.
- b) Outer panel : 2.0 mm thick, Qty. : 2 pcs / each side.
- c) Trapezium :
  - Outer face : 100 mm, Slope : 5 mm,
  - Inner face : 100 mm, Depth : 15.5~18.5 mm,
  - Pitch : 210 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 : 20~25 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. : 11 pcs

#### 6.7.1 Roof Reinforcement Plate

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

Dimension : 289 x 232 x 4.0 mm for front end,  
 289 x 245 x 4.0 mm for rear end.

### 6.8 Floor

#### 6.8.1 The Floor Boards

The floor consists of plywood. The plywood is treated with wood preservative

according to the Commonwealth Department of Health, Australia.

Floor thickness	: 28 mm
Floor moisture content	: Less than 14%
Floor ply number	: 19 plies
Floor material	: Plywood

### 6.8.2 Arrangement and Fixing

The plywood boards are longitudinally laid on the crossmember with a free floating flat steel at the center. The plywood boards are tightly secured to each crossmember with countersunk self-tapping electro-zinc plated steel screws. These 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.

Screws	: M8 x 45 x Φ16 (head), Electro zinc plated.
Screws' Qty.	: 6 Pcs / end row, 3 Pcs/outtrigger, 5 Pcs / other.
Floor centre rail	: 50mm , thickness: 4mm ;

## 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 huck-bolt 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 : 10 pcs, Total : 40 pcs.

2) Treatment of lashing ring : Electro zinc plated

### 6.9.3 Ventilators

Two ventilators with EPDM seal gasket are supplied on each end wall at each end of container, 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 : 2 pcs / each end panel

Material : ABS labyrinth type

## 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 self-tapping screws, lashing rings and hinges, which are not mentioned in this Spec. will be electro zinc plated to 13 microns.
- 4) Sealant for joints

Each perimeter of the floor, all the overlapped joints of inside, all the holes for bolts 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 the steel surface will be coated with primer paint immediately after shot-blasting.

**7.2.2 After Assembly**

All the weld joints will be shot-blasted to remove all the welding fluxes, spatters, burnt primer coatings caused by welding heat, and other foreign materials, and followed with the secondary paint operation immediately.

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

<b>Process</b>	<b>Paint Name</b>	<b>Min DFT (μ)</b>
Exterior Surface	Zinc rich epoxy	30
	Zinc phosphate epoxy	30
	PU topcoat (RAL5015)	50
	<b>Total : 110</b>	
Interior Surface	Zinc rich epoxy	30
	Epoxy topcoat (RAL7035)	40
	<b>Total : 70</b>	
Under Structure	Zinc rich epoxy	30
	Tectyl 121B or Dinitrol 4941K	200
	<b>Total : 230</b>	

Epoxy zinc rich primer and epoxy topcoat are not applied to the wooden floor.

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

**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 or paint.
- 6) Material of marking : According to owner's requirements.

**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) Inspection authority
- 6) Date of manufacture (year and month - engraved or stamped)
- 7) Owner’s serial number (stamped)
- 8) 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**

**9.2.1** Every container in mass production shall be manufactured under effective quality control procedures to meet the specified standards. One in every 150 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.

**9.2.2** Each assembled corner post structure will have tension test with 17,000 kgs after welding in the construction line.

**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 30 degrees to horizontal. Time duration : 5 mins.
d. 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.
e. 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.
f. Roof Strength	Test Load : 300 kg	Applied area will be the weakest place of 600 x 300 mm longitudinal & transverse. Time duration : 5 mins.
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. 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.
j. 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.
k. 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**

CIMC-NANTONG shall submit the specification with following drawing (3 sets) :

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

## 11. Guarantee

The guarantee period will commence upon acceptance by the owner in the factory. ( The guarantee according to purchase contract.)

### 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 three (3) 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>Base Assembly :</u>	
Bottom side rail	Corten A
Crossmember	Corten A
Gooseneck tunnel	Corten A
Outrigger	Corten A
Floor support angle	Corten A
<u>Front End Assembly :</u>	
Front corner post (outer)	SM50A or equivalent
Front corner post (inner)	Corten A
Front header	Corten A
Front sill	SS41
Front panel	Corten A
<u>Rear End Assembly :</u>	
Rear corner post (outer)	SM50A or equivalent
Rear corner post (inner)	China GB 16Mn or equivalent
Door header	Corten A

Door sill	Corten A
Door panel	Corten A
Door panel frame member (vertical - inner)	Corten A
Door panel frame member (vertical - outer)	Corten A
Door panel frame member (horizontal)	SS41
Door hinge plate	SS41, electro zinc plated
Door hinge pipe	Stainless steel
Door hinge pin	Stainless steel
Washer	Stainless steel
Locking cam, cam keeper	S20C
Locking rod	STK41
Door gasket	EPDM
Gasket retainer	Stainless steel
Rivet	Stainless steel
Shim	EPDM
Corner fitting	SCW49
Ventilator	ABS
<u>Side Wall Assembly :</u>	
Top side rail	SS41
Side panel	Corten A
Lashing ring	SS41, electro zinc plated
<u>Roof :</u>	
Roof panel	Corten A
Roof corner gusset	Corten A
<u>Floor :</u>	
Floor board	Plywood
Floor screw	Electro zinc plated

Note :

1. For the strength & supplies concern, SM50A & China GB 16Mn are the best design option in the market. But when material thickness  $\geq 8$ mm, its surface texture may have an roughness value about 0.5 mm due to thick steel plate hot rolled manufacturing process.

2. Mechanical properties of the material mentioned as above:

Material	Yield Point (kg/sq.mm)	Tensile Strength (kg/sq.mm)
SS41	25	41
JIS SCW49	28	49
S20C	25	42
Corten A	35	49
SM50A	33	50
China GB 16Mn	33	52