Technical Specification

For

40' x 8' x 9'6" ISO Type

Dry Cargo Steel Container

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This specification is used in all factories of

Shanghai CIMC Baowell Industries Co., Ltd.

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1. Scope

This specification covers design, construction, materials, testing, inspection & prototype container. The container is built in accordance with the requirements of I.S.O. 1AAA Type steel dry freight containers by China International Marine Containers (Group) Limited (CIMC).

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2. General

2.1 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.

2.2 Standards & Regulations

2.2.1 latest ISO container standard:

668	-	Series 1 freight containers - Classification, external dimensions and ratings
6346	-	Coding, identification and marking for freight containers
1161:1984	-	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.

2.2.2 Classification Certificate

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

2.2.3 T.C.T Certificate

Certificate of timber treatment to the requirement of Australia Department of Agriculture And Water Resources (DAWR).

2.2.4 Customs Certificate (T.I.R.)

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

2.2.5 U.I.C. Registration

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

2.2.6 C.S.C. Certificate

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

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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:** Stacking test load to be 97,200kg/post.
- **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.

4.4 One door off operation:

Stacking test load to be 54,860 kg per post.

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5. Dimensions and Ratings

5.1 Dimension

	External Dimensions	Internal Dimensions
Length	12,192 (0, -10) mm	12,032 (0, -10) mm
Width	2,438 (0, -5) mm	2,352 (0, -5) mm
Height	2,896 (0, -5) mm	2,698 (0, -5) mm

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

Maximum allowable differences between two diagonals on any one of the following surfaces are as follows:

Roof, Bottom and Side Diagonals	.....	19 mm
Front and Rear Diagonals	.....	10 mm.

5.2 Door Opening

Width	.....	2,340 (0, -5)	mm
Height	.....	2,585 (0, -5)	mm

5.3 Gooseneck Tunnel

Length	.....	3,315	mm
Width	.....	1,029 (+3, 0)	mm
Height	.....	120 (0, -3)	mm

5.4 Inside Cubic Capacity

76.4 cu.m	2,700 cu.ft

5.5 Rating

Maximum Gross Weight	.....	32,500 kg	71,650 lbs
Maximum Payload	.....	28,800 kg	63,490 lbs
Tare Weight (±2%)	.....	3,700 kg	8,160 lbs

5.6 Corner Protrusions

1) The upper faces of the top corner fittings will protrude above the highest level of the roof construction except corner plate by 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 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.

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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 CO2 gas arc 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 penetration without undercutting or porosity. The tolerance of steel plate thickness will obey JIS standard G3193-1990, table 4.

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 double "Z" section steel pressing. The bottom flange face outwards so as to be easily repaired and hard to corrode. Double plate will be welded at two ends of bottom side rail to avoid the damages of twistlocks.

Qty. : Two (2).
Shape : Double "Z" section.
Dimension : 155 x 52 x 28 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 three 4.0 mm thick webs located beneath each board joint of the plywood, which are placed at certain center distance.

Shape : " C " section
Small one : 122 x 45 x 45 x 4.0 mm, Qty. : 25
Large one : 122 x 75 x 45 x 4.0 mm, Qty. : 3

6.3.3 Gooseneck Tunnel

The gooseneck tunnel consists of one piece pressed hat section tunnel plate, a number of pressed channel section tunnel bows, one welded box section rear bolster and tunnel outriggers. The gooseneck tunnel is designed according to ISO standard:

a) Tunnel plate thickness: 4.0 mm Qty. : 1
b) Tunnel bow thickness: 4.5 mm Qty. : 12
c) Bolster: 150x100x4.0 mm, Qty. : 1
d) Outriggers - "C" section: 118x75x45x4.0 mm, Qty. : 1/each side
118x45x45x4.0 mm, Qty. : 7/each side

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6.3.4 Reinforcement

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

Dimension: 200 x 120 x 4.0 mm

6.4 Front End

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

6.4.1 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- Outerface: 110 mm , Depth: 45.6 mm
Interface: 104 mm , Slope: 18 mm

6.4.2 Front End Frame

The front end frame will be composed of one front sill, two corner posts, one front header and four corner castings.

6.4.2.1 Front Sill

The front sill consists of a square tube front rail on top with flat strips as the wood supports and open style front.

Gooseneck tunnel gusset	: 6.0 mm Thk.	Qty.: 2
Front rail	: 60 x 60 x 3.0 mm	Qty.: 1
Flat strips	: 45x3.0 mm Thk.	Qty.: 2
Triangular shaped reinforcement	: 9.0 mm Thk.	Qty.: 2

6.4.2.2 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.

6.4.2.3 Front Header

The front header is constructed of one, 4.0 mm thick, " Z " pressed steel plate with reinforcements at each top corner. The upper part is extended inwards of the container certain distance with full width from front part of top corner fitting.

6.5 Rear End

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

6.5.1 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 has a slope for better drainage and the highest part is on the same level to 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.

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6.5.2 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

6.5.3 Door Header

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

Rear header : 4.0 mm thick
Header plate : 3.0 mm thick
Rib : 4.0 mm thick, Qty.: 4

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 doors are so arranged that the left leaf cannot be opened without displacement of the right leaf.

1) Door Panel: With 5 corrugations

Depth	: 36 mm		Slope	:	68 mm
Width	: 72 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 3.2 mm RHS (inner & outer)

6.5.4.2 Hinges and Pins

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

Washer - SUS304, under the bottom of hinge
Bushing - Self-lubricating synthetic, one piece of bush
Pin - SUS304

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

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a) Locking device type: HaiHang HH-ET/SM with secura cam & keeper, Saejin SJ-88MOD with secura cam & keeper or Suraloc SL-F/5 with secura cam & keeper, which of the supplier shall be used depend on the owner's final approval before production.
b) Locking bars treatment: Hot-Dipped galvanized (75 Microns)
c) Cam keeper treatment: Electro zinc plated.

6.5.4.4 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.

6.5.4.5 Seal Gaskets

The black door seal gaskets are of "J-C" type EPDM rubber. They are attached to the door frame with stainless steel rivets and retainer strips. The gasket is set with adhesive sealant on the back.

6.5.4.6 Shim

The E.P.D.M shim will be placed over the holes on the door for fastener (except under large bearing brackets).

6.6 Side Wall Assembly

6.6.1 Top Side Rails

Each top side rail is used a square steel pipe.

Rail: 60 x 60 x 3.0 mm RHS

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) Inner panel : 1.6 mm Thk. , Qty. : 9 Pcs/Each side
b) Outer panel : 2.0 mm Thk. , Qty. : 2 Pcs/Each side
c) Trapezium:

Outer face	:	72 mm ,	Slope	: 68 mm
Inner face	:	70 mm ,	Depth	: 36 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 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.	: 11 Pcs.				

6.7.1 Roof reinforcement plate

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

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6.8 Floor

6.8.1 The Floor Boards

The floor consists of plywood. The plywood is treated with wood preservative containing according to the latest requirement of the Australian Biosecurity Import Conditions (BICON).

Plywood thickness	:	28 mm
Plywood moisture content	:	Less than 14 %
Plywood ply number	:	Min. 19 plies
Plywood material	:	Apitong, Hardwood, Bamboo, OSB

6.8.2 Arrangement and Fixing

The plywood boards are longitudinally laid on the crossmember with a pre-blasted painted and free floating CFRT 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 and sealed with floor coating.

Screws	:	M8 x 45 x Φ16(head), Electro zinc plated
Screws' Qty.	:	6 Pcs/end row, 4 Pcs/other, 3 Pcs/outrigger
Flat bar	:	50 x 4.0 mm, 连续纤维增强热塑性塑料(CFRT)

6.9 Special Features

6.9.1 Customs Seal Provision

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

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, Total: 40
2) Lashing rods are welded on each rear & front corner post slot.
   Lashing rods Qty. / Each front corner post: 3, Total: 6
   Lashing rods Qty. / Each rear corner post: 3, Total: 6
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 rods on the corner posts: 1,000 kg/each
4) Treatment of lashing ring / bar: Electro zinc plated

6.9.3 Sill Cut-Outs

200 x 75 x 9mm channel section steel recesses are provided in each end of rear sills adjacent to the bottom fitting to prevent damage due to any twistlock misalignment.

6.9.4 Ventilators

One ventilator with E.P.D.M seal gasket is supplied on each side wall at the right-hand end when facing the outside of container, fixed by aluminum huck bolts, the seal is to be applied on the edges except the bottom side of the

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ventilator, after the completion of paint.
Quantity: 1 / each side panel
Material: ABS Labyrinth Type.

7. Preservation

7.1 Surface Preparation of the Steelwork

1) All the steel surfaces 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 removement 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) Fasteners and associated components such as collars, threaded nuts, spring washers, and self-tapping screws will be electro zinc plated (Thickness: 13μ).
4) Threaded Bolts and Huck bolts will be hot-dip galvanized (Min. Thickness: 40μ).
5) Hinges and cam keepers will be electro zinc plated to 13 Microns.
6) 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. Waterborne sealant or Chloroprene/Neoprene (Cargo contact area)
   b. Butyl (Hidden parts and other area)
   c. Chloroprene (Exterior)

7.2 Coating

7.2.1 Prior to Assembly

All the steel surfaces 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.

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

Process	Paint Name	DFT (μ)
Exterior Surface	Epoxy zinc rich primer	30
	Epoxy primer	40
	Acrylic topcoat Color: RAL5013	40
	Total : 110	
Interior Surface	Epoxy zinc rich primer	30
	Epoxy topcoat, colour: RAL7035	50
	Total: 80	
Under Structure	Epoxy zinc rich primer	30
	Waxy bitumen	200 (steel parts) 100 (wooden floor)
	Total: 230 (steel parts)	

Waterborne paint system:

Process	Paint Name	DFT (μ)
Exterior Surface	Solvent based Epoxy zinc rich primer	10
	Waterborne Epoxy zinc rich primer	20
	Waterborne Epoxy primer	40
	Waterborne Acrylic topcoat Color:	40
	Total : 110	
Interior Surface	Solvent based Epoxy zinc rich primer	10
	Waterborne Epoxy zinc rich primer	20
	Waterborne Epoxy topcoat colour: RAL7035	50
	Total: 80	
Under Structure	Solvent based Epoxy zinc rich primer	10
	Waterborne Epoxy zinc rich primer	20
	Waterborne undercoating	200 (steel parts) 100 (wooden floor)
	Total: 230 (steel parts)	

* The DFT decision rules in practice is 90-10:
  For each area, and coat, less than 10% of the readings may be below the DFT specified. No readings may be below 90% of the DFT specified. Areas where the total DFT is more than twice the DFT specified are not acceptable and must be redone completely.
* Epoxy zinc rich primer and epoxy topcoat are not applied to the wooden floor.
* Zinc rich primer minimum content 80%.
* Shop primer (green) and main primer (gray) should have the color contrast.

8. Markings

8.1 Lettering

The markings will be designed decal and arranged according to buyer's

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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) Material of marking: Vinyl film.
6) Supplier of marking:

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 in this specification. The plate will be fitted by 3M double sided adhesive tape along the periphery of the backside of the data plate, two stainless or EPDM washers and two stainless rivets at center.

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-engraved, month-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.

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 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

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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 10% of assembled corner post structure will have tension test with 15,240 kgs after welding in the construction line.

9.3 The proposed sequence & procedure table for general prototype testing:

Sequence of tests	Test Load	Procedure
a. Stacking	Internal Load: 1.8R-T Testing load: 97,200kg/post	Hydraulic cylinder load to corner post through top corner fittings.
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° Deg. 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.
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. Wall Strength (Front & Door)	Test Load: 0.4 P	Compressed air bag is used.
g. Side Wall Strength	Test Load: 0.6 P	Compressed air bag is used.
h. Roof Strength	Test Load: 300 kg	Applied area will be the weakest place of 600 x 300 mm longitudinal & transverse.
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.
j. Rigidity (Longitudinal)	Test Force: 7,620 kg (75 kn)	Hydraulic cylinder load will applied to side top rail through top corner fittings.
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

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9.5 Inspection

9.5.1 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.

9.5.2 Production Line Inspection

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

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

10.2 When delivery

CIMC shall prepare all the documents needed two weeks before the date of delivery and submit them to the owner.

11. Guarantee

The guarantee period will commence at the day of delivery and the delivery is not later than three (3) months after the containers are accepted by the owner.

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 two (2) years. 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

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

Where used	Materials
<u>Front End Assembly</u>	
Front corner post	Corten A
Front sill	Corten A
Front panel	Corten A
Front header cap	Corten A
Front rail	Corten A
Triangular reinforcement plate	SS41
<u>Base Assembly</u>	
Bottom side rail	Corten A
Crossmember	Corten A
Gooseneck tunnel	Corten A
Outrigger	Corten A
Floor center rail	CFRT
Floor support angle	Corten A
<u>Rear End Assembly</u>	
Rear corner post (outer)	Corten A
Rear corner post (inner)	SM50YA (or SS50)
Rear header cap	Corten A
Door header lower	Corten A
Door sill	Corten A
Door panel frame	Corten A
Door panel	Corten A
Door hinge	S20C, Electro zinc plated
Door hinge pin	SUS304
Locking cam keeper	S20C, Electro zinc plated
Locking cam	S20C, H.D.G.
Locking rod	STK41, H.D.G.
Door gasket	E.P.D.M
Gasket retainer	SUS304
Washer	SUS304
Rivet	SUS304
Shim	E.P.D.M.
Corner fitting	SCW49
<u>Side Wall Assembly</u>	
Side panel	Corten A
Top side rail	Corten A
Lashing bar, lashing ring	SS41, Electro zinc plated
Ventilator	A.B.S
<u>Roof</u>	
Roof corner gusset	Corten A
Roof panel	Corten A

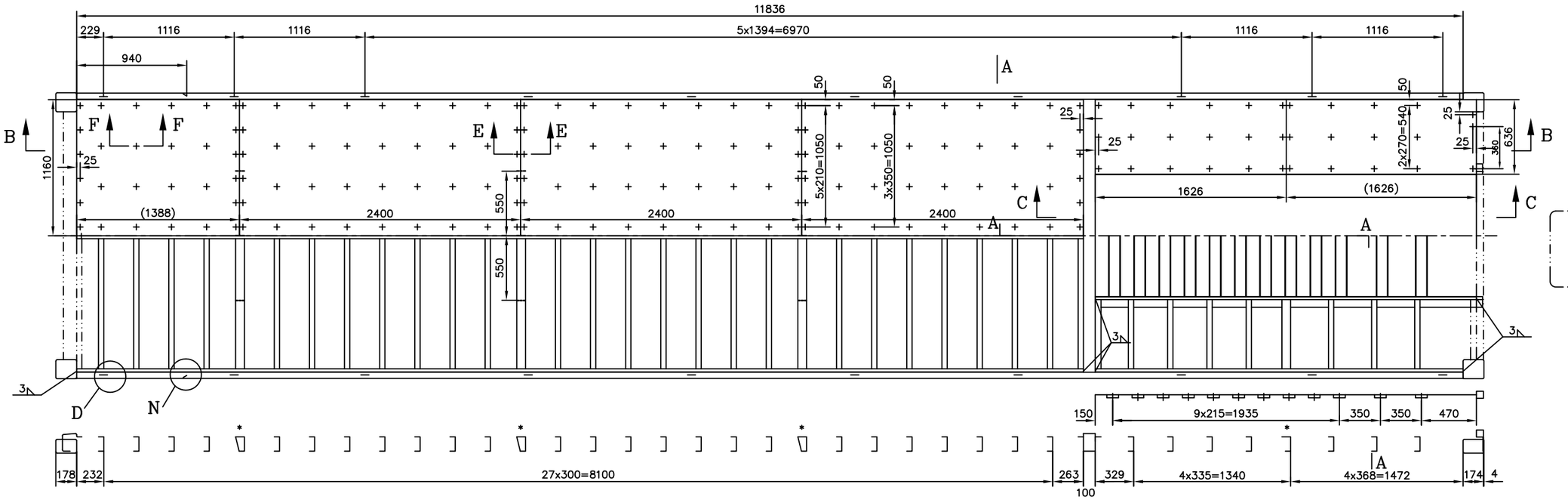
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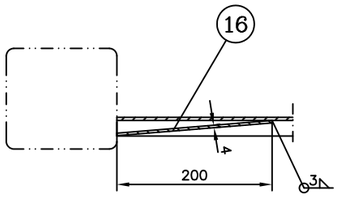
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Material	Yield point (Kg/sq.mm)	Tensile strength (Kg/sq.mm)
SS41	25	41
JIS SCW49	28	49
SS50	29	50
S20C	25	42
SM50YA	37	50
Corten A	35	49
SM50A	33	50

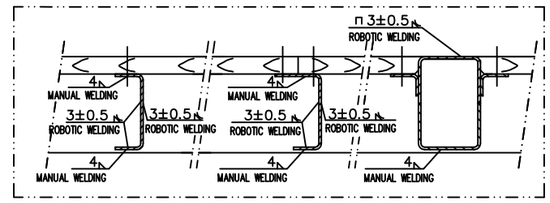
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DWG No.: 194A42G1B



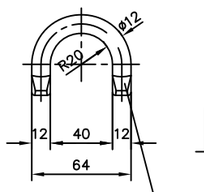


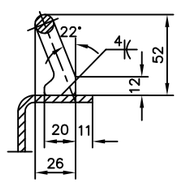
SECTION H–H
1 : 5



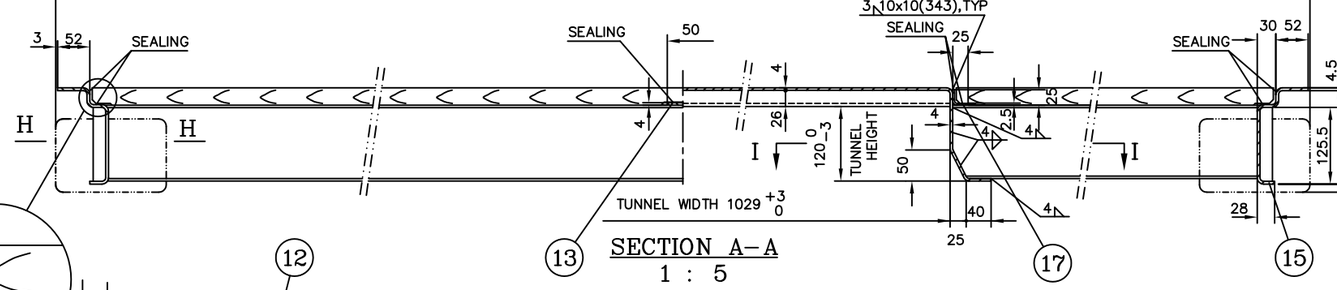
OPTION
Robotic welding

Note:
Both Manual welding and Robatic welding would be adjusted according to workmanships of different factories.

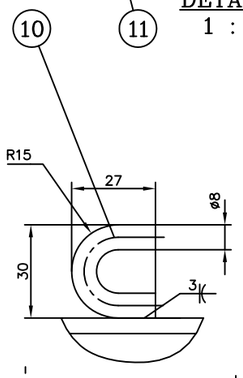


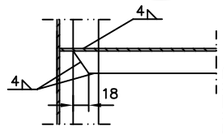


DETAIL D
1 : 2

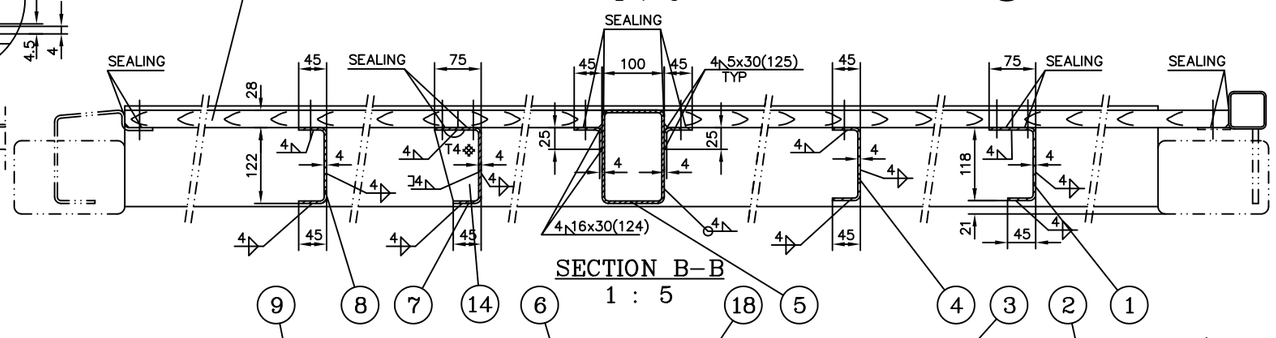


SECTION A–A
1 : 5

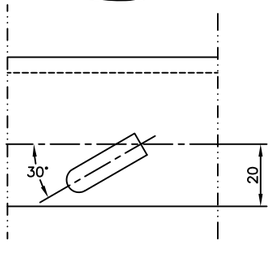




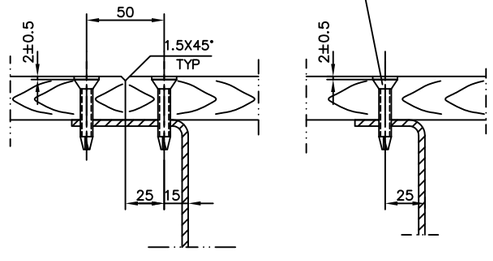
SECTION I–I



SECTION B–B
1 : 5

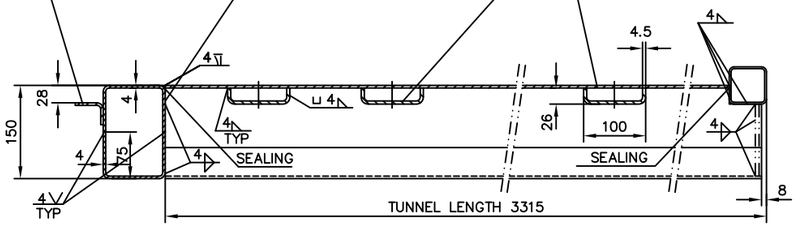


DETAIL N
1 : 1



SECTION E–E
1 : 2

SECTION F–F
1 : 2



SECTION C–C
1 : 5

ITEM	DESCRIPTION	DWG No.	MATERIAL	TH.	QTY.
18	TUNNEL BOLSTER UPPER	B050501	CORTEN A	4	1
17	FLOOR SUPPORT ANGLE	B120101	CORTEN A	2.5	1ST
16	CORNER GUSSET PLATE	B140101	CORTEN A	4	4
15	BOTTOM SIDE RAIL	B130404	CORTEN A	4.5	2
14	WIDE CROSSMEMBER WEB	B150101	CORTEN A	4	9
13	FLOOR CENTER RAIL	B110102	CFRT	4	1ST
12	FLOOR ASSEMBLY	B100002			1ST
11	LASHING RING	S060001	SS400,ZINC PLATED		20
10	DOOR HOOK	B090002	SS400,ZINC PLATED		2
9	SELF–TAPPING SCREW	M8x45xΦ16(HEAD)	ZINC PLATED		362
8	CROSSMEMBER	B080101	CORTEN A	4	25
7	WIDE CROSSMEMBER	B070101	CORTEN A	4	3
6	FLOOR SUPPORT ANGLE	B060101	CORTEN A	4	1
5	TUNNEL BOLSTER	B050601	CORTEN A	4	1
4	OUTRIGGER	B040101	CORTEN A	4	14
3	TUNNEL BOW	B030101	CORTEN A	4.5	12
2	TUNNEL PLATE	B020101	CORTEN A	4	1
1	WIDE OUTRIGGER	B010101	CORTEN A	4	2

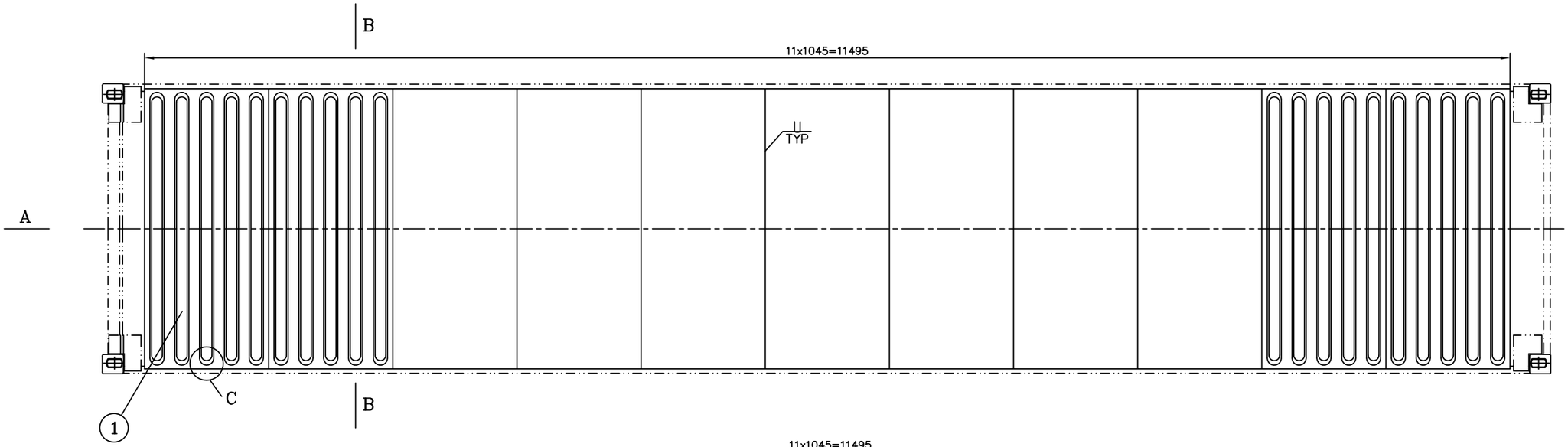
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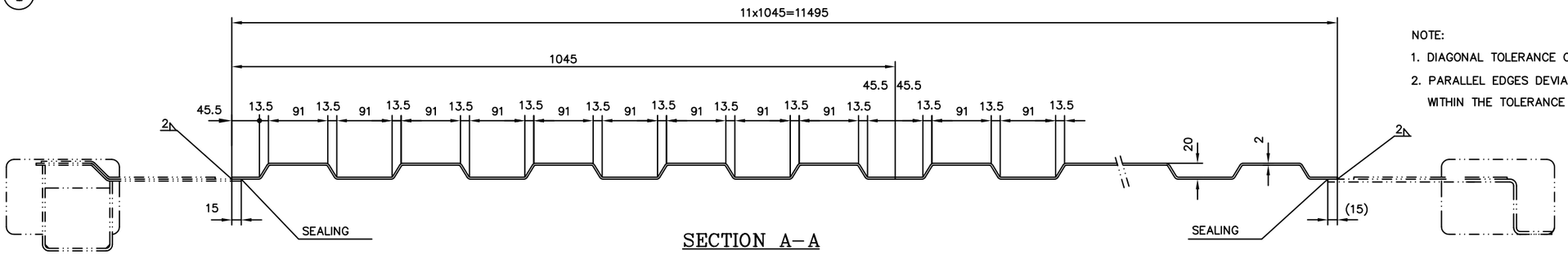
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DESIGNED BY:		WEIGHT: KG.	QTY.: 1
CHECKED BY:		DWG No.:	194A42G1B
APPROVED BY:			
SHEET 1 OF 1 SHEETS		ISSUE:	20A–00

CIMC

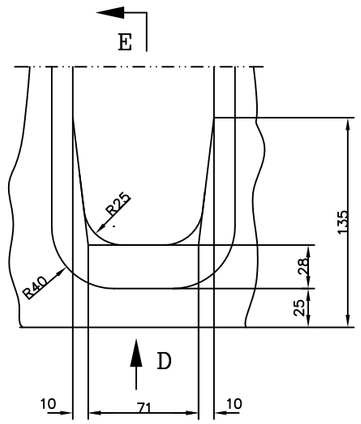
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DWG No.: 194A42G1R

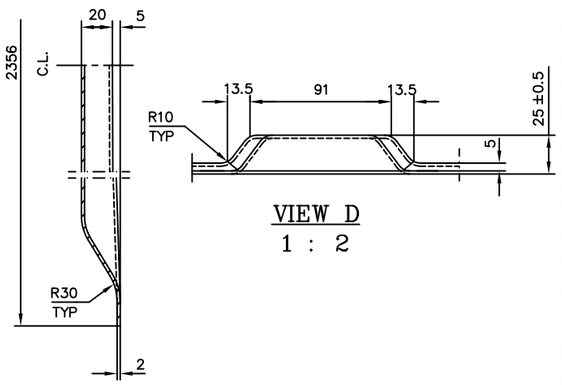




SECTION A–A
1 : 5

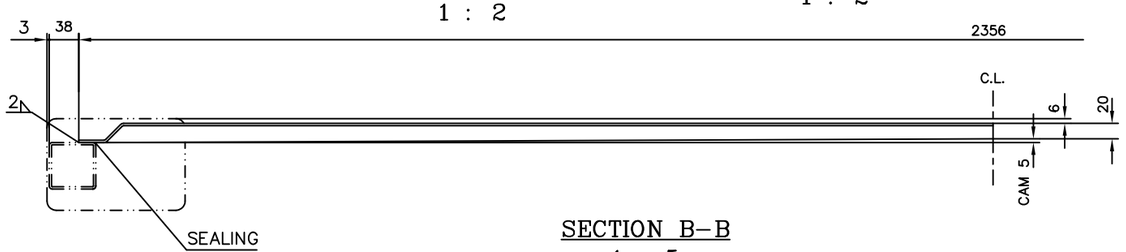


DETAIL C
1 : 2

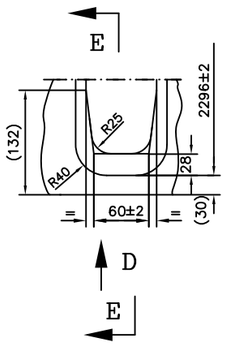


SECTION E–E
1 : 2

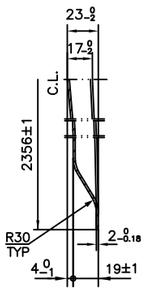
VIEW D
1 : 2



SECTION B–B
1 : 5

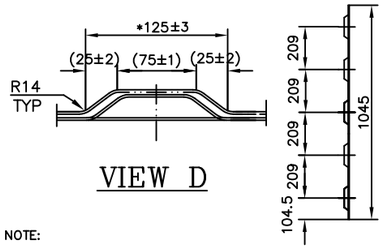


DETAIL C



SECTION E–E

OPTION
ONE HIT ROOF PANEL



VIEW D

NOTE:
1. The thickness of the formed one–hit panel at flat area and curved area must be minimum 1.75mm.
2. The thickness on radius or/and corner must be minimum 1.65mm.
3. Diagonal tolerance of each panel is 2mm.
4. The dimension 125(*marked) should be controlled strictly.

NOTE:
1. DIAGONAL TOLERANCE OF EACH ROOF PANEL IS 2 MM.
2. PARALLEL EDGES DEVIATION OF EACH ROOF PANEL WITHIN THE TOLERANCE OF ±0.5 MM

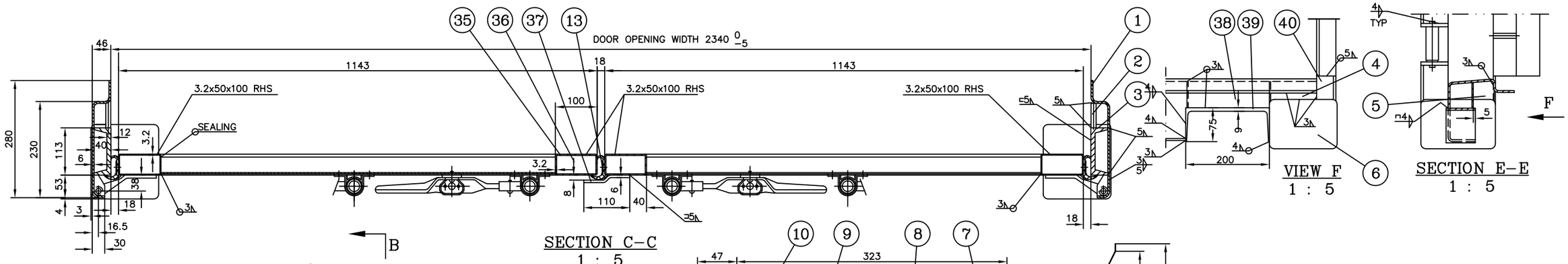
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1	ROOF PANEL	R010101	CORTEN A	2	11

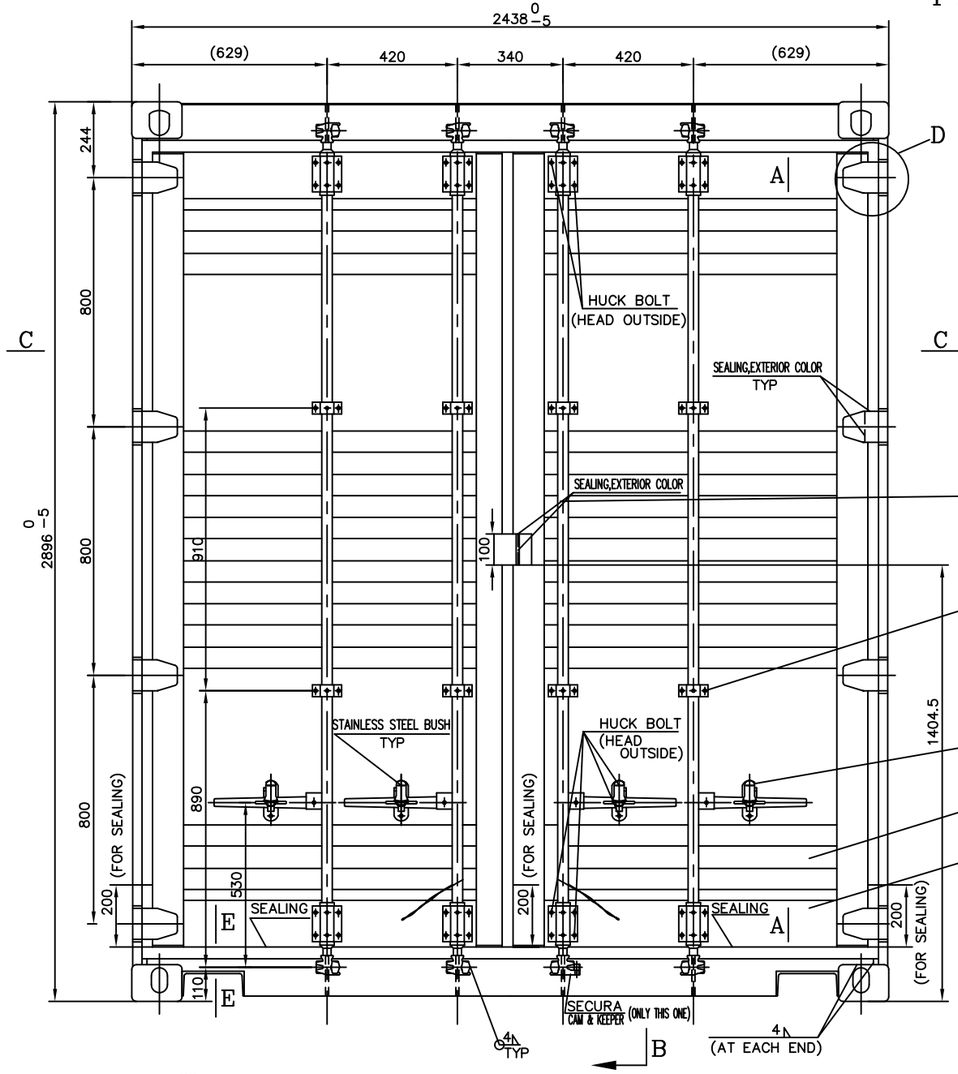
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DESIGNED BY:		WEIGHT: KG.	QTY.: 1
CHECKED BY:		DWG No.: 194A42G1R	
APPROVED BY:			
SHEET 1 OF 1 SHEETS		ISSUE: 20A–00	

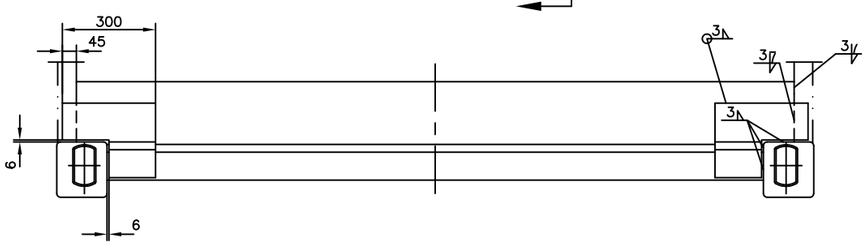
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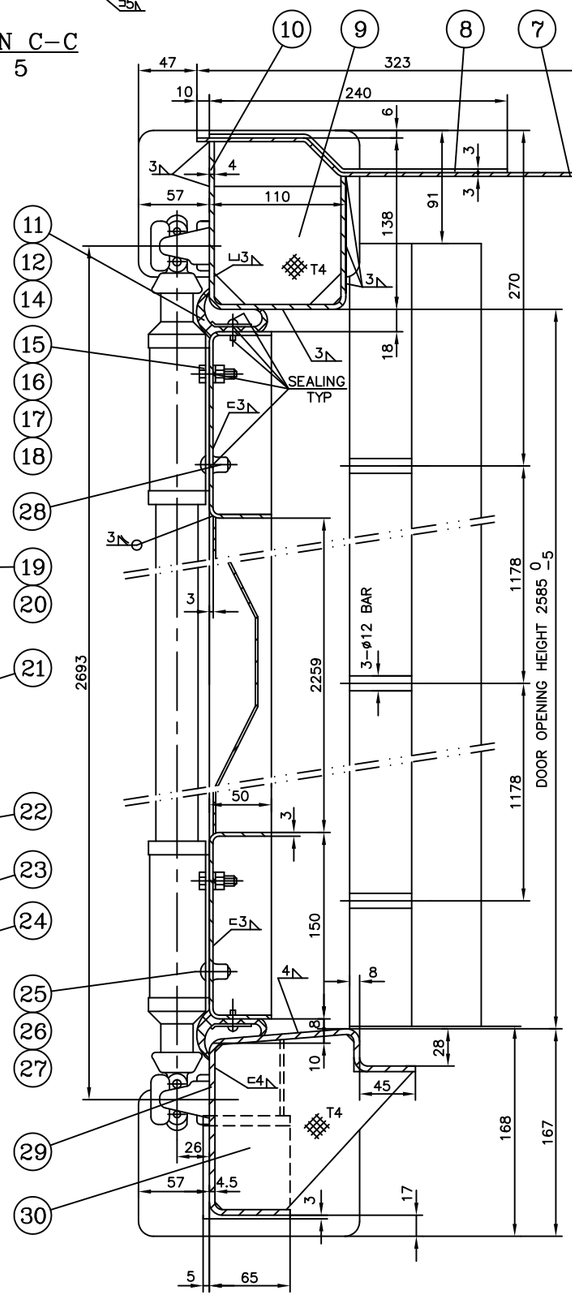
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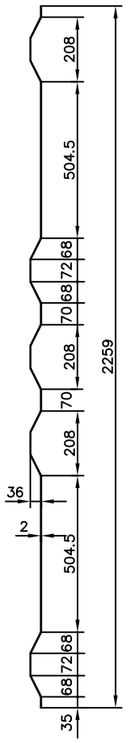
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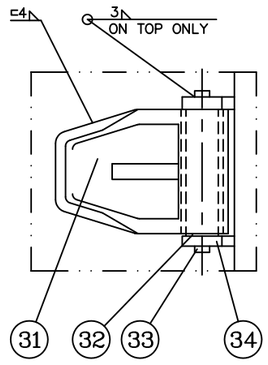












ITEM	DESCRIPTION	DWG No.	MATERIAL	TH.	QTY.
40	COVER PLATE	E290101	CORTEN A	6	2
39	CHANNEL SECTION	E280101	SS400	9	2
38	COVER PLATE	E270101	CORTEN A	3	2
37	DOOR KEEPER	E260101	CORTEN A	6	1
36	DOOR FRAME COVER PLATE	E250101	CORTEN A	3	8
35	DOOR FRAME HOLLOW SECTION	E240102	CORTEN A	3.2	4
34	HINGE BUTT	E230001	SS400,ZINC PLATED		16
33	HINGE PIN	E220001	SUS304		8
32	PLAIN WASHER (GB/T97.1-2002)	2.0x13(ID)x24(OD)	SUS304		8
31	HINGE(FULL NYLON BUSH,REINFORCED)	E200008	SS400,ZINC PLATED		8
30	DOOR SILL WEB	E190101	CORTEN A	4	4
29	DOOR SILL	E180101	CORTEN A	4.5	1
28	HUCK-BOLT CAP	2662-1200	ZINC PLATED		6
27	HUCK-BOLT	2611-1204	HDG		4
26	HUCK-BOLT	2611-1206	HDG		1
25	HUCK-BOLT	2611-1212	HDG		1
24	DOOR RAIL	E170101	CORTEN A	3	4
23	DOOR PANEL	E160102	CORTEN A	2	2
22	SHIM	E150001	EPDM		4
21	SHIM	E140001	EPDM		8
20	DOOR HOLDER	E310001	NYLON		2
19	LOCKING DEVICE	194A45G1E.1	HDG		1ST
18	NUT (GB/T6170-2000)	M10 G8	ZINC PLATED		50
17	SPRING WASHER (GB93-1987)	A10	ZINC PLATED		50
16	BOLT (GB/T5783-2000)	M10x25 G8.8	HDG		47
15	BOLT (GB/T5783-2000)	M10x35 G8.8	HDG		3
14	RIVET (GB/T12618-90)	ø4.8x15,OPEN TYPE	SUS304		90
13	GASKET RETAINER-V	E120102	SUS304	1	3
12	GASKET RETAINER-H	E110101	SUS304	1	4
11	DOOR GASKET	E100002	EPDM		1ST
10	DOOR HEADER LOWER	E090101	CORTEN A	4	1
9	DOOR HEADER WEB	E080101	CORTEN A	4	4
8	ROOF CORNER GUSSET	E070102	CORTEN A	3	2
7	DOOR HEADER PLATE	E060102	CORTEN A	3	1
6	CORNER FITTING (ISO 1161)	178x162x118	SCW480		0.5ST
5	REAR CORNER COVER PLATE	E050101	CORTEN A	3	2
4	REAR CORNER COVER PLATE	E040101	CORTEN A	3	2
3	REAR CORNER POST INNER	E030002	SS490/SM490YA		2
2	LASHING ROD	E020001	SS400,ZINC PLATED		6
1	REAR CORNER POST	E010102	CORTEN A	6	2

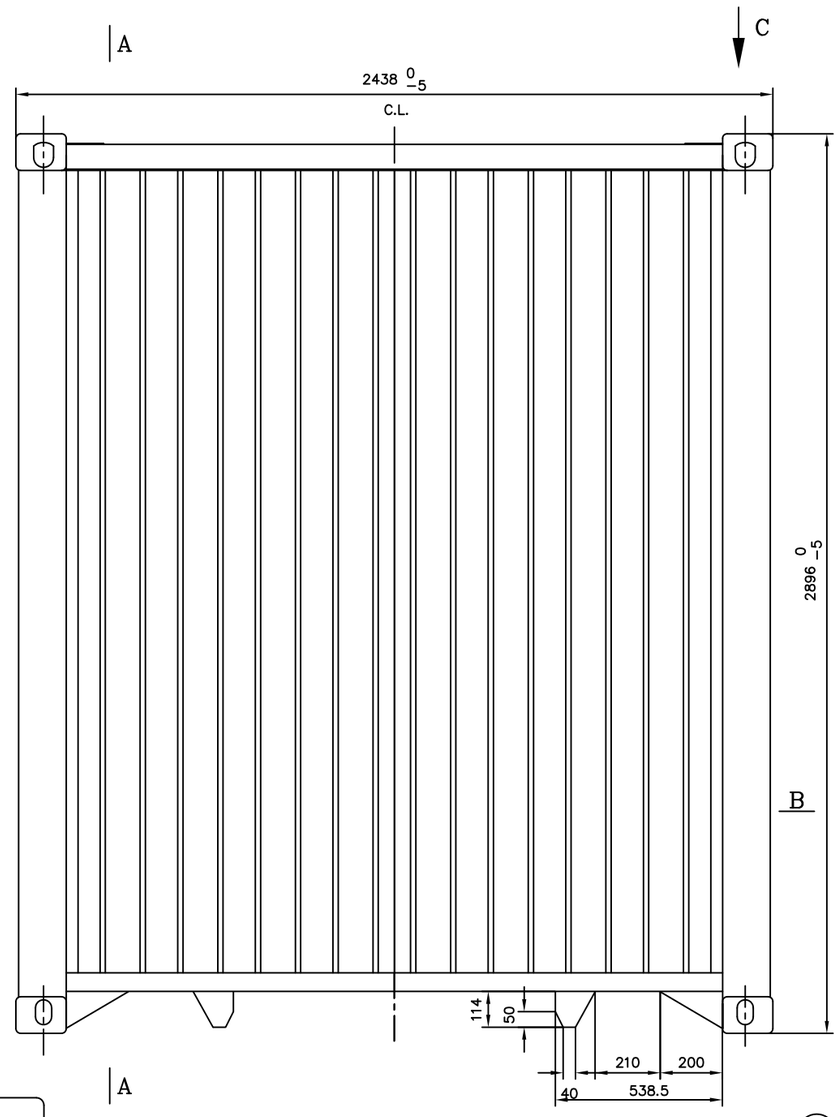
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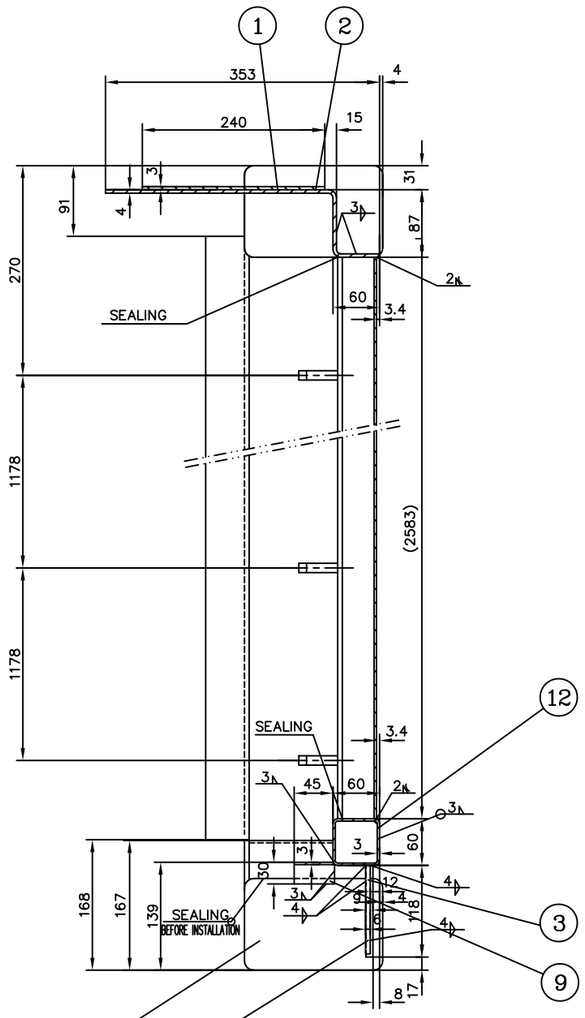
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SHEET 1 OF 1 SHEETS		ISSUE: 10B-01	

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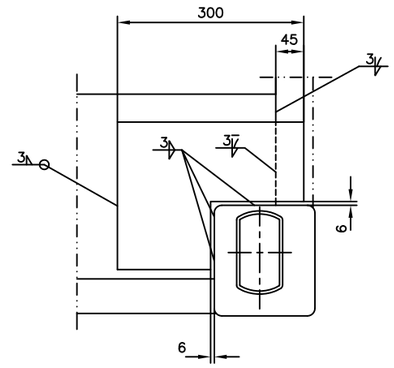
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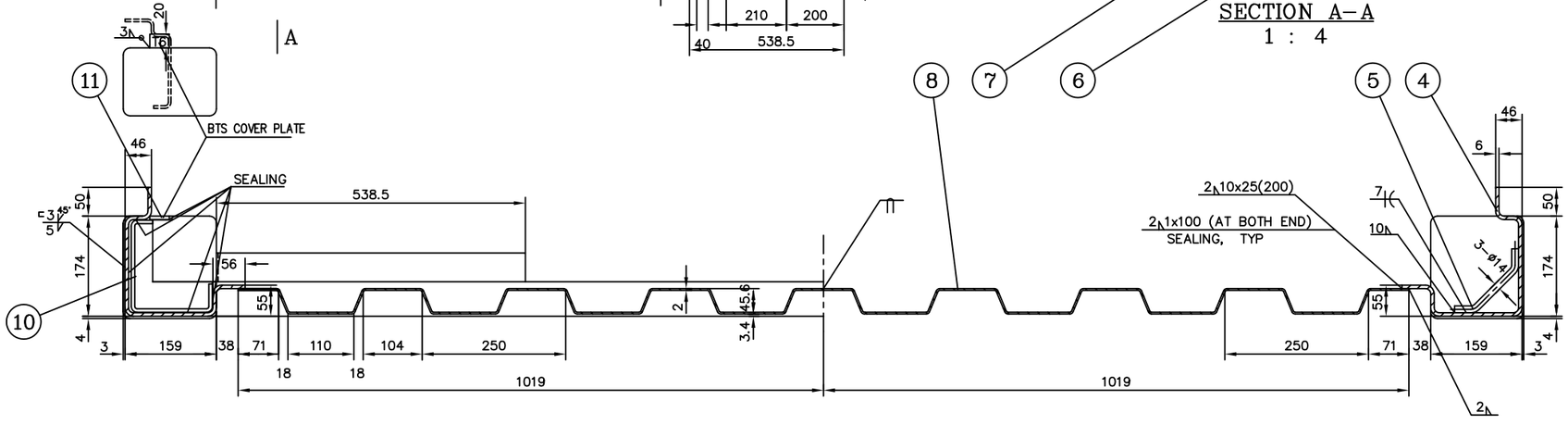




SECTION A–A
1 : 4



VIEW C
1 : 5



SECTION B–B
1 : 5

ITEM	DESCRIPTION	DWG No.	MATERIAL	TH.	QTY.
12	FRONT SILL UPPER	F250101	CORTEN A	3	1
11	COVER PLATE	F210102	CORTEN A	6	2
10	FRONT FLOOR SUPPORT	F240002	POLYPROPYLENE		2ST
9	FLOOR SUPPORT	F100201	CORTEN A	3	2
8	FRONT PANEL	F080103	CORTEN A	2	2
7	CORNER FITTING (ISO 1161)	178x162x118	SCW480		0.5ST
6	REINFORCEMENT PLATE	F190101	SS400	9	2
5	LASHING ROD	F060002	SS400,ZINC PLATED		6
4	FRONT CORNER POST	F050203	CORTEN A	6	2
3	GOOSENECK TUNNEL GUSSET	F180101	CORTEN A	6	2
2	FRONT HEADER	F200202	CORTEN A	4	1
1	ROOF CORNER GUSSET	F010202	CORTEN A	3	2

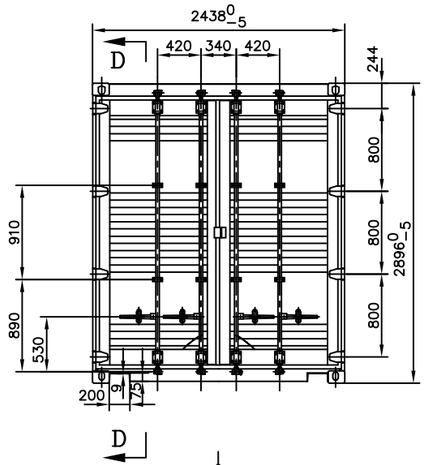
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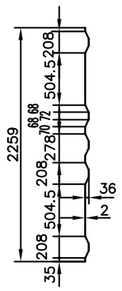
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CHECKED BY:		DWG No.: 194A45G1F	
APPROVED BY:			
SHEET 1 OF 1 SHEETS		ISSUE: 10A–00	

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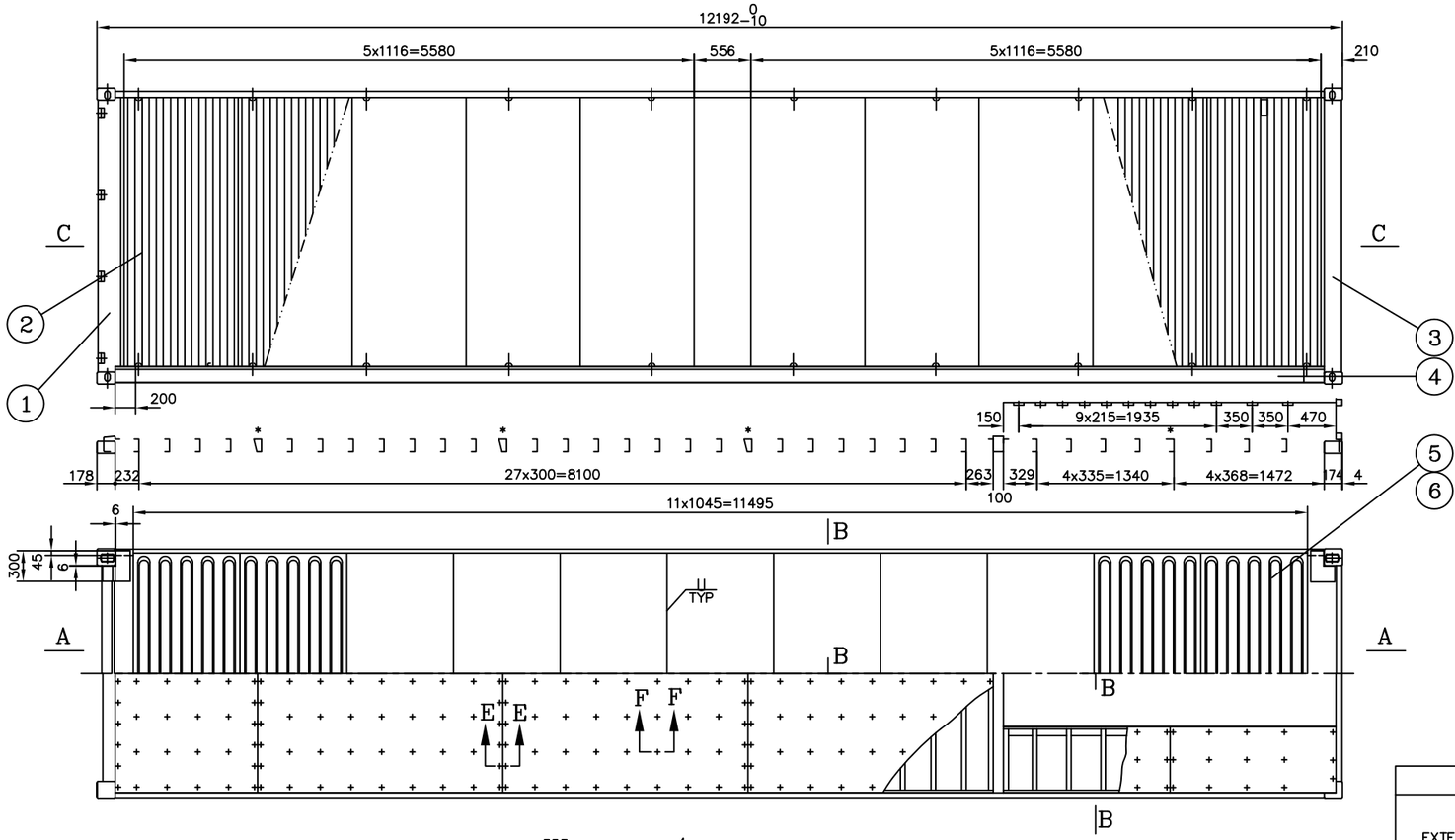
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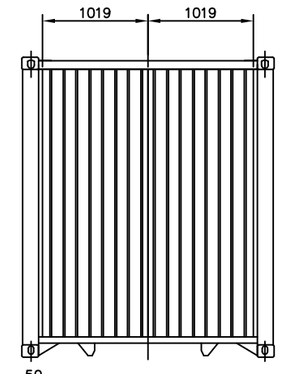
DWG No.: 194A45G1G

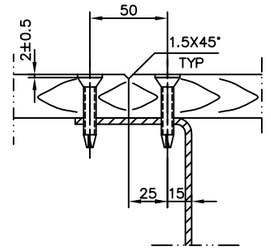




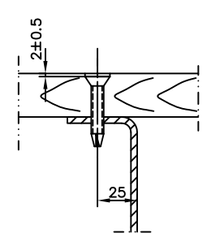
SECTION D–D



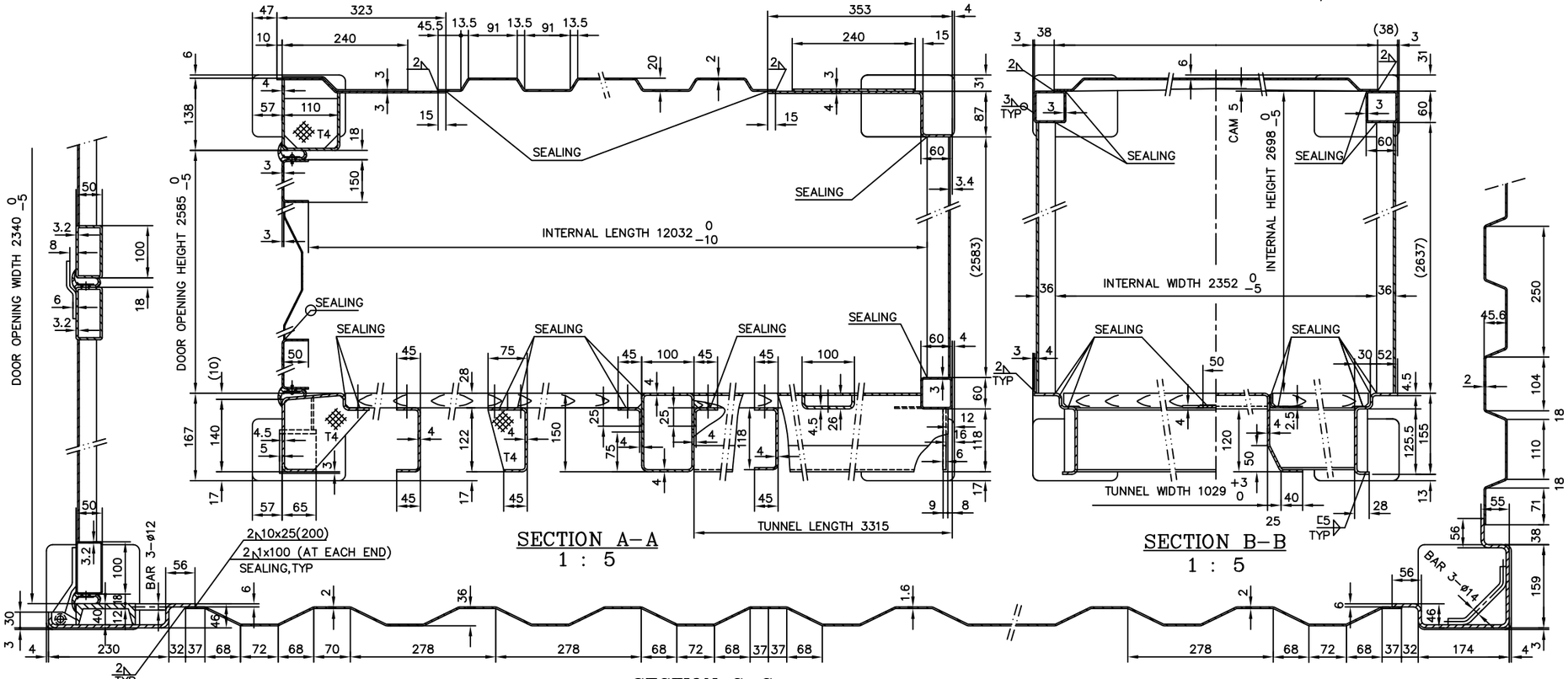




SECTION E–E
1 : 2



SECTION F–F
1 : 2



SECTION A–A
1 : 5

SECTION B–B
1 : 5

SECTION C–C
1 : 5

CLASSIFICATION		DIMENSION	
EXTERNAL	LENGTH	12192 0 -10	40' 0 -3/8"
	WIDTH	2438 0 -5	8' 0 -3/16"
	HEIGHT	2896 0 -5	9' -6" 0 -3/16"
INTERNAL	LENGTH	12032 0 -10	39' -5 45/64" 0 -3/8"
	WIDTH	2352 0 -5	7' -8 19/32" 0 -3/16"
	HEIGHT	2698 0 -5	8' -10 7/32" 0 -3/16"
DOOR OPENING	WIDTH	2340 0 -5	7' -8 1/8" 0 -3/16"
	HEIGHT	2585 0 -5	8' -5 49/64" 0 -3/16
INTERNAL CUBIC CAPACITY		76.4 M³	2700 FT³

MAX GROSS WEIGHT	32500 KGS	71650 LBS
TARE WEIGHT	3730 KGS	8220 LBS
MAX PAY LOAD	28770 KGS	63430 LBS
STACKING TEST LOAD	97200 KGS	214290 LBS
FLOOR STRENGTH	7260 KGS	16000 LBS

ITEM	DESCRIPTION	DWG NO.	ISSUE	QTY.
6	MARKING ARRANGEMENT	194A45G1M	16A–00	1
5	ROOF ASSEMBLY	194A42G1R	20A–00	1
4	BASE ASSEMBLY	194A42G1B	20A–00	1
3	FRONT END ASSEMBLY	194A45G1F	10A–00	1
2	SIDE WALL ASSEMBLY	194A45G1S	10A–00	2
1	REAR END ASSEMBLY	194A45G1E	10B–01	1

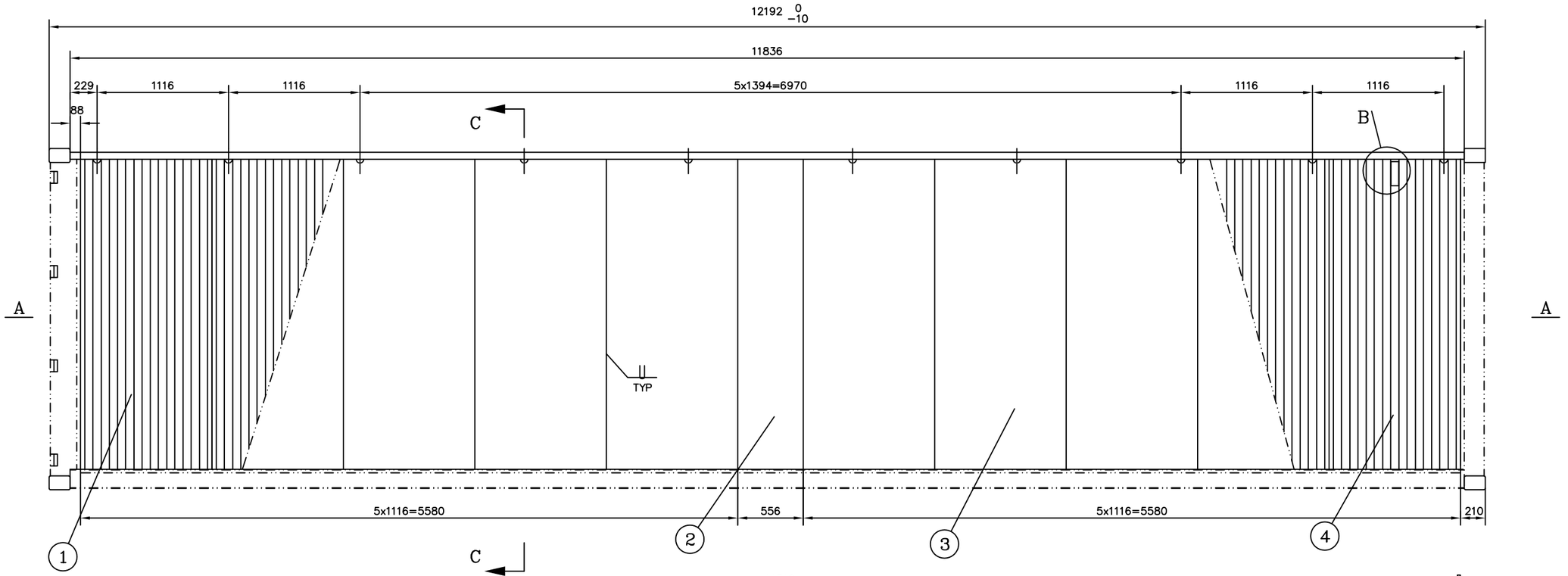
TITLE: 40'x8'x9'6" GENERAL ARRANGEMENT

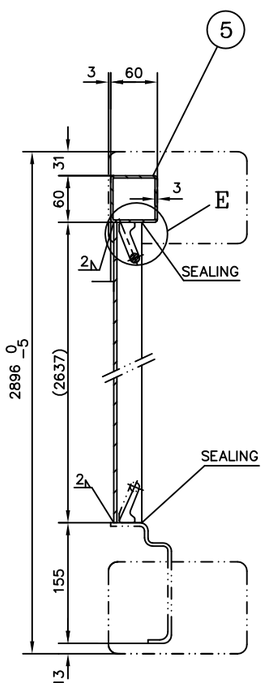
CUSTOMER:		SCALE: 1 : 30	
DESIGNED BY:		WEIGHT: KG.	QTY.: 1
CHECKED BY:		DWG No.: 194A45G1G	
APPROVED BY:			
SHEET 1 OF 1 SHEETS		ISSUE: 20A–00	

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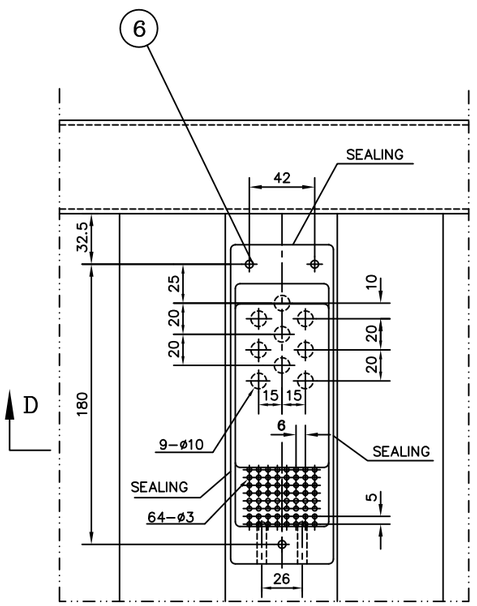
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DWG No.: 194A45G1S

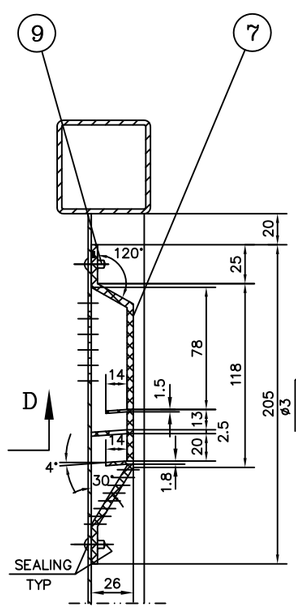




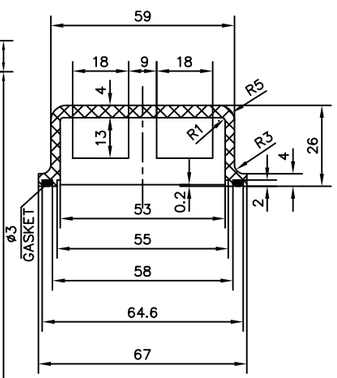
SECTION C–C
1 : 4



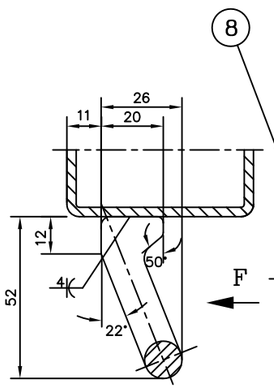
DETAIL B
1 : 2



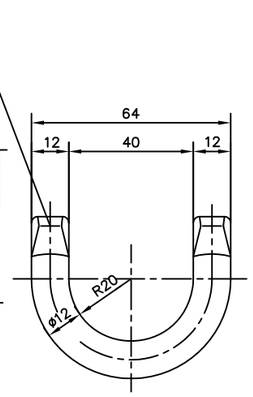
SECTION A–A
1 : 5



SECTION D–D
1 : 1



DETAIL E
1 : 1



VIEW F
1 : 1

NOTE:
R.H. AS SHOWN.
L.H. SYMMETRICALLY OPPOSITE. AND THE VENTILATOR IS LOCATED NEAR THE REAR END.

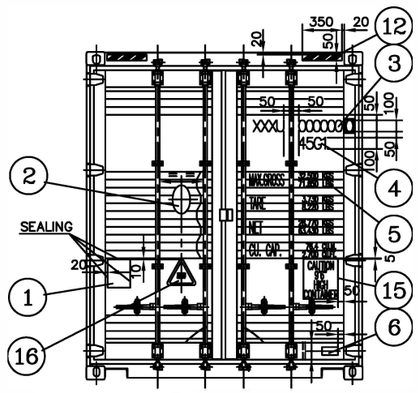
ITEM	DESCRIPTION	DWG No.	MATERIAL	TH.	QTY.
9	HUCK–BOLT CAP	2662–0600	ALUMINIUM		3
8	LASHING RING	S060001	SS400,ZINC PLATED		10
7	VENTILATOR	S050001	ABS		1
6	HUCK–BOLT	2611–0604	ALUMINIUM		3
5	TOP SIDE RAIL	S040102	CORTEN A	3	1
4	SIDE PANEL (HOLE)	S030102	CORTEN A	2	1
3	SIDE PANEL	S010103	CORTEN A	1.6	8
2	SIDE PANEL (SMALL)	S020102	CORTEN A	1.6	1
1	SIDE PANEL	S010104	CORTEN A	2	1

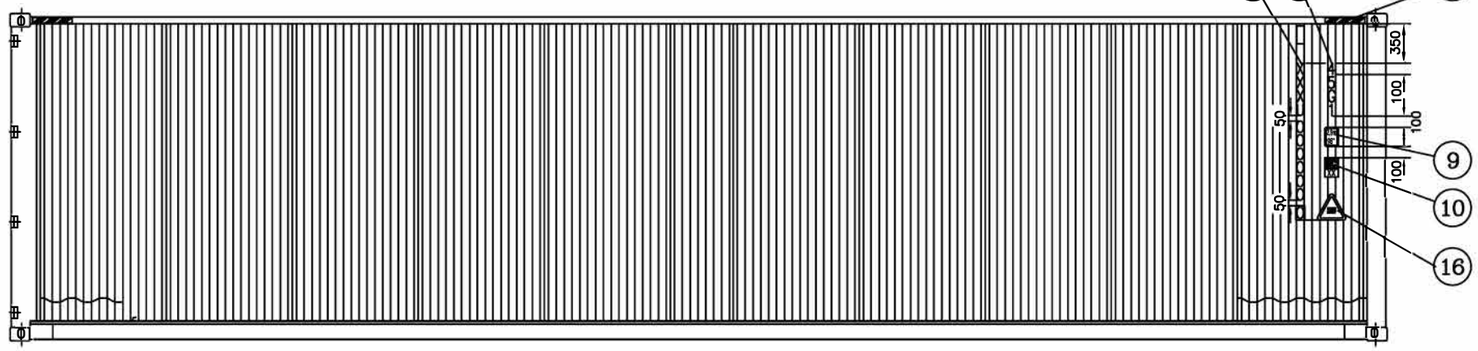
TITLE: SIDE WALL ASSEMBLY

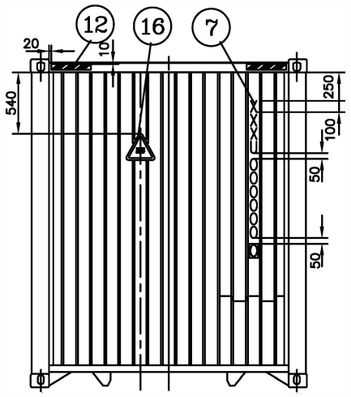
CUSTOMER:		SCALE:	1 : 20
DESIGNED BY:		WEIGHT:	KG. QTY.: 2
CHECKED BY:		DWG No.:	194A45G1S
APPROVED BY:			
SHEET 1 OF 1 SHEETS		ISSUE:	10A–00

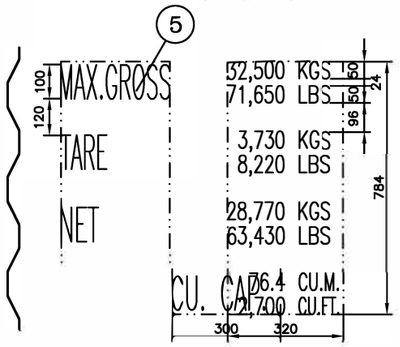
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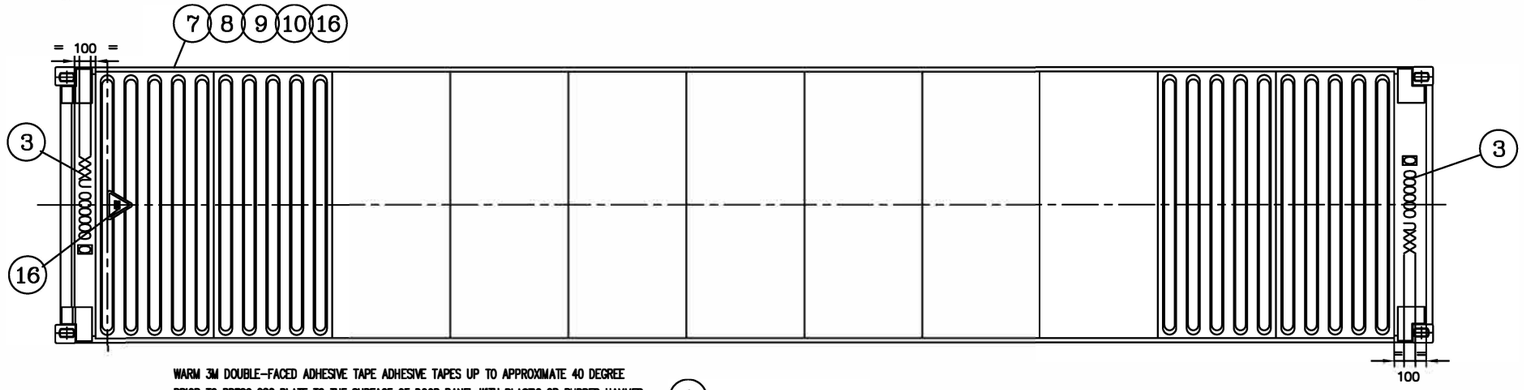
DWG No.: 194A45G1M

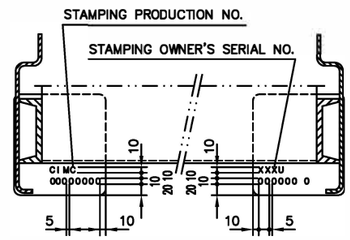






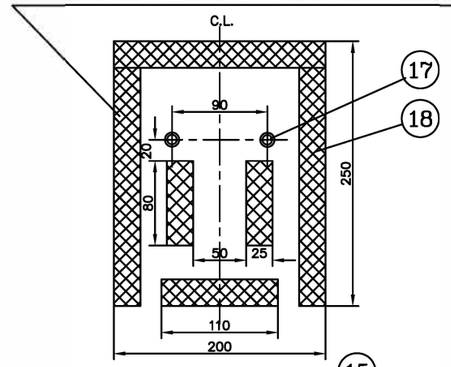


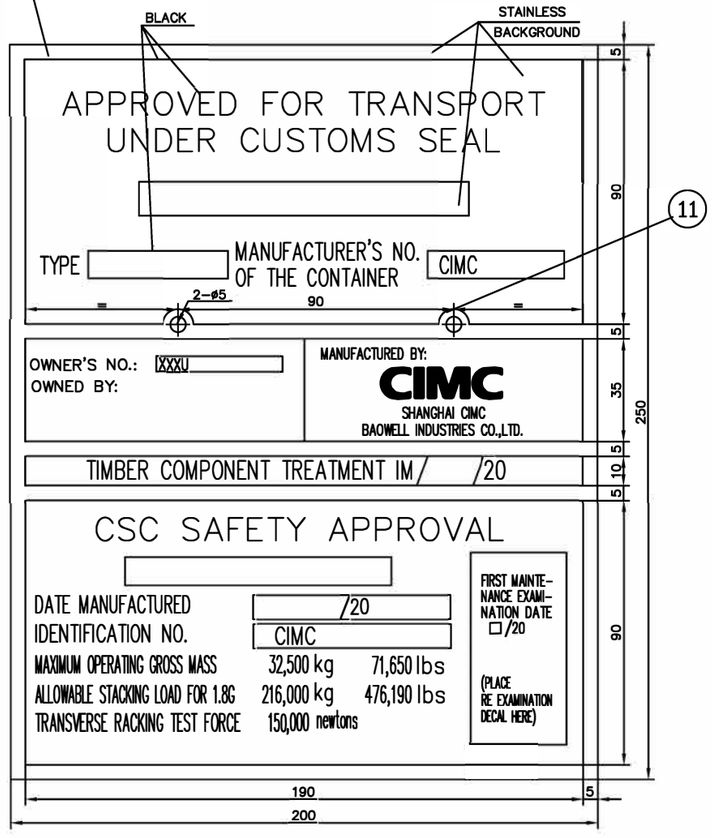


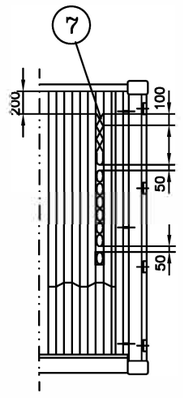


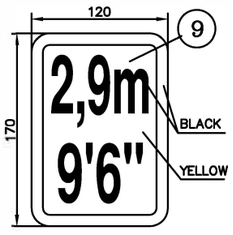
REAR END BOTTOM CORNER FITTING

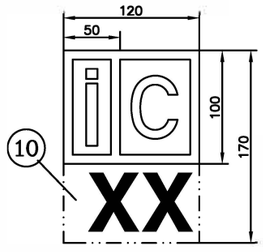
WARM 3M DOUBLE-FACED ADHESIVE TAPE ADHESIVE TAPES UP TO APPROXIMATE 40 DEGREE PRIOR TO PRESS CSC PLATE TO THE SURFACE OF DOOR PANEL WITH PLASTIC OR RUBBER HAMMER

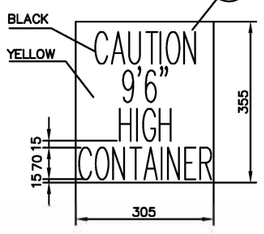


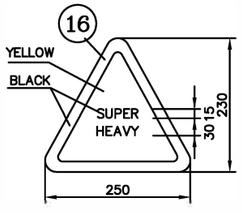












ITEM	DESCRIPTION	DWG No.	MATERIAL	TH.	QTY.
18	DOUBLE SIDE ADHESIVE TAPE	M040001			0.92M
17	PLAIN WASHER (GB/T97.1-2002)	0.8x45(ID)x10(OD)	SUS304		2
16	SUPER HEAVY DECAL		BLACK ON YELLOW		5
15	DOOR HIGH CAUTION DECAL		BLACK ON YELLOW		1
12	WARNING MARK (50x350)		BLACK ON YELLOW		8
11	RIVET (GB/T12618-90)	4.8x7,OPEN TYPE	SUS304		2
10	UIC MARK		WHITE, KISSCUT		2
9	9'6" HEIGHT MARK		BLACK ON YELLOW		2
8	SIZE AND TYPE CODE (SIDE)		WHITE, KISSCUT		2
7	OWNER'S CODE AND SERIAL NUMBERS (SIDE, FRONT, INSIDE)		WHITE, KISSCUT		4
6	CIMC DECAL				1
5	WEIGHT DECAL	M100048	WHITE,KISSCUT		1ST
4	SIZE AND TYPE CODE(DOOR)		WHITE, KISSCUT		1
3	OWNER'S CODE AND SERIAL NUMBERS(DOOR, ROOF)		WHITE, KISSCUT		3
2	CLASSIFICATION DECAL				1
1	CONSOLIDATED PLATE(T=0.8mm)	M010005	SUS304		1

TITLE: MARKING ARRANGEMENT

CUSTOMER:		SCALE:	1 : 25
DESIGNED BY:		WEIGHT:	KG. QTY.: 1
CHECKED BY:		DWG No.:	194A45G1M
APPROVED BY:			
SHEET 1 OF 1 SHEETS		ISSUE:	21A-00

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