

Annexure-6

TECHNICAL SPECIFICATION

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TECHNICAL SPECIFICATIONS

TECHNICAL SPECIFICATIONS FOR FOLLOWING TYPES OF ISO STEEL DRY FREIGHT CONTAINERS FOR CONCOR.

| Type | Description | Maximum Gross Weight | Quantity |
|-----------|--|----------------------|----------|
| Type –III | 20 feet Hi-Cube (9’6”) End open containers | 34 Tonne | 1000 |

1. GENERAL

- 1.1. OPERATIONAL ENVIRONMENT** - The container shall be designed and constructed for transportation of general cargo on sea (above or below deck) and land (road and rail). All material used in the construction shall be able to withstand extremes of temperature ranging from -30°C to $+70^{\circ}\text{C}$ without any effect on the container’s strength and water-tightness.
- 2. STANDARDS AND REGULATIONS** - The container should generally be designed, manufactured and tested in accordance with the requirements of latest version of the following standards and regulations:
- 2.1** ISO (International Organization for Standardization) TC-104 standards and recommendations as under:
- i. ISO 668: 1988 (E) Amendment 1 (1993), and Amendment 1 & 2 (2005) in fifth edition (1995) or latest edition: Series 1 Freight Containers Classification, dimensions and ratings.
 - ii. ISO 1161: 1984 (E): Series 1 Freight Containers, Corner Fittings Specification.
 - iii. ISO 1496/1: 1984 Amendment 1 (1990), Amendment 2 to 4 (2005) and Amendment 5 (2006) or latest edition: Series 1 Freight Containers Specification & Testing. Part 1: General Cargo Containers for general purpose.
 - iv. ISO 6346: 1995 (E): Freight Containers Coding Identification and Marking.
 - v. ISO 830: Freight Containers – Vocabulary
 - vi. ISO 6359 Freight Containers – Consolidated Data Plate
- 2.2. TIR Certification:** The Customs Convention on “The International Transport of Container” (TIR).
- 2.3. UIC Certification:** The International Union of Railway (UIC) Code 592–2 OR CSC Certification: The International Convention for Safe Containers (CSC).
- 2.4. TCT Certification:** all exposed wooden components used for container will be treated to comply with the requirements of “cargo Containers-Quarantine Aspects and Procedure” of the Common wealth Department of Health Australia.
- 2.5. Classification Society:** All the containers will be certified for design type and individual inspection by any of the agencies (subject to their registration with IACS OR IMO & Director General of Shipping, Govt. of India, Mumbai).

Note: Agencies who are registered with International Association of classification societies (IACS) OR International Maritime Organization (IMO) & Director General of Shipping, Govt. of India, Mumbai can be engaged by supplier for carrying out testing inspection and approval of containers.

3. **APPROVAL AND CERTIFICATES** - The container to be supplied should confirm to standards mentioned in clause 2.1, regulation / certification mentioned clause from 2.2 to 2.4 and to be certified by any one of the agencies mentioned in clause 2.5.

The Supplier shall bear all charges involved in getting the containers inspected and certified by the aforesaid agencies in accordance with the appropriate standards / regulations and technical specifications.

4. **HANDLING** - The container will be constructed to be capable of being handled without any permanent deformation during the following conditions: -
- i. Lifting, full or empty, at the top corner fittings vertically by means of spreaders fitted with hooks, shackles or twist locks,
 - ii. 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.
 - iii. Lifting, full or empty only, at two-fork pocket by fork lift truck

5. **TRANSPORTATION** - Containers shall be so constructed as to be suitable for transportation in the following modes:

Road: On flat bed or skeletal chassis to be secured at 4 bottom corner fittings by twist locks or equivalent securing devices.

Rail: On flat cars or special container carrying wagons to be secured at 4 bottom corner fittings by twist locks or equivalent securing devices.

Marine: In the ship cell guides: Seven (7) high stacked.
On the deck: Four (4) high stacked and secured by suitable vertical and diagonal wire lashing.

6. **CONSTRUCTION REQUIREMENTS** - Construction requirements for 20Ft High Cube End Open 34T dry freight steel Containers are at Annex-6A. Broad details of major assemblies/items are given. Supplier can use stronger/equivalent design while being within the permissible tare weight. Supplier to use appropriate designs for assemblies/items for which details are not indicated subject to approval by the certified agencies as mentioned in clause 2.5.

7. Surface Protection

- 7.1 **SURFACE PREPARATION** - All the steel components prior to forming will be shot blasted to a SA 2.5 standard surface by means of an automatic centrifugal shot surface cleaning machine. A weld-able primer compatible to the paint system will be applied immediately (say within 20 minutes of shot blasting) to a thickness of 10 to 15 micron to preserve the surface integrity during the assembly process. All welds and any other area that was contaminated during the assembly process to be cleaned by standard practice. Slags and spatters to be removed by means of grinding or needle hammers.

8. Coating

8.1 **Prior to assembly** - The entire steel surface to be coated with epoxy zinc rich primer after shot blasting.

8.2 **After assembly**

| Process | Paint Name | DFT in microns |
|------------------|--|---|
| Exterior | Solvent based Epoxy zinc rich primer | 10 |
| | Waterborne Epoxy zinc rich primer | 20 |
| | Waterborne Epoxy primer | 40 |
| | Waterborne Acrylic topcoat for Type -I: RAL 7033 & for Type -II & Type-III: RAL 5017 | 40 |
| | Total | 110 |
| Interior surface | Solvent based Epoxy zinc rich primer | 10 |
| | Waterborne Epoxy zinc rich primer | 20 |
| | Waterborne Acrylic topcoat RAL 7035 | 50 |
| | Total | 80 |
| Under structure | Solvent based Epoxy zinc rich primer | 10 |
| | Waterborne Epoxy zinc rich primer | 20 |
| | Waterborne undercoating (waxy or bituminous) | 200 (steel parts) 100 (wooden floor) |
| | Total | 230 for steel and 100 for wooden floor |

Note : (i) Zinc rich epoxy and topcoat are not applied to wooden floor.

(i) Use of solvent based paints is also permitted.

9. **MARKING** - The containers will be marked in accordance with ISO, TCT, CSC and TIR requirements, owner's marking specifications and other required regulations.

10. **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. Logo shall be size of 1500 mm x 1200 mm on each side wall (i.e. two numbers) and one logo of size 176 mm x 222 mm on the left hand door of end open container and one logo on left door of each side door of side access containers.
- 2) Owner's code, serial number and check digit (outside and inside)
- 3) Size and type code (outside)
- 4) Weight details (on door)
- 5) UIC or CSC marking
- 6) Other markings: according to owner's requirements
- 7) Material of marking: According to owner's requirements
- 8) Each container shall be, centrally or according to requirement, written CONCOR in English at one side wall and on other wall कॉन्कोर in Hindi with the color of RAL 1026.

Note: The relevant details would be provided at the time of awarding of contract. The drawing would be submitted for approval as part of QAP.

- 11. CONSOLIDATED PLATE** - The containers will bear some of the marking plates in accordance with the requirements of the Classification Authorities and owner such as mentioned in clause 2 above of this specification. Rivets and sealant will permanently rivet the plate to the specified position.

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

11.1 CONTENTS OF THE PLATE

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

The engraved letters on the plate are as following:

- | | |
|------|----------------------------|
| IM | : Immunisation |
| XXXX | : The name of preservative |
| XXXX | : The time of immunization |
- 6) Inspection authority
 - 7) Date of manufacture (year and month-engraved or stamped)
 - 8) Owner's serial number (stamped)
 - 9) Owner's model number

- 12. BAR CODE** - Bar code on each container shall be provided by using temper proof "Decal" on door near to container sealing arrangement with minimum size of 80 x 30 mm. The exact location of Bar Code shall be decided by purchaser at the time of approval of QAP.

13. TESTING AND INSPECTION

- 13.1 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 as per detail stipulated in the clause 13.2 before the mass production.

- 13.2** A prototype will undergo the full series of tests as described in **ISO 1496-1990 (5th edition) "Specifications and Testing – Part-1** along with its all amendments under survey or equivalent test stipulated by classification society as specified in clause 2.5 of Section V and a complete test report signed by attending surveyor of the nominated classification society / agency and report to be submitted to the purchaser.

Each assembled corner post structure will have tension test with 15,240 kgf after welding in the construction line.

Supplier shall verify & ensure that the weight of the container is as per submitted offer/QAP accepted by CONCOR, prior to it being put-up for inspection and Proto type testing by the nominated classification Society. This recorded tare weight of the container shall form part of the Proto Type Test Report/Result conducted by Classification Society. The proposed criteria table for general prototype testing

| SL | TEST NO. | TEST LOAD | METHOD |
|----|----------|-----------|--------|
|----|----------|-----------|--------|

| SL | TEST NO. | TEST LOAD | METHOD |
|----|-------------------------------------|--|--|
| A | Stacking | Internal Load:1.8R-T Testing Load: as per ISO standards for the prescribed maximum gross weight. | Hydraulic cylinder load to corner post through tope corner fittings. Time duration: 5 minutes. |
| B | Lifting from Top corner fittings | Internal Load: 2R-T | Lifting vertically from top corner fittings. Time duration: 5 minutes. |
| C | Lifting from Bottom Corner Fittings | Internal Load : 2R-T | Lifting from bottom corner fitting 45 degrees to horizontal. Time duration: 5 minutes. |
| D | End wall Strength | Test Load: 0.4P | Compressed air bag is used. Time duration: 5 minutes. |
| E | Side Wall Strength | Test Load: 0.6P | Compressed air bag is used. Time duration: 5 minutes. |
| F | Lifting from Fork Pocket | Internal Load: 1.6R-T | Lifted by two horizontal bars. Bar length 1828 mm, bar width 200 mm Time duration: 5 minutes. |
| G | 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 minutes. |
| H | Floor Strength | Truck Load: 7260 kgf | Special truck is used. Total contact area: 284 sq. cm. Wheel width: 180 mm, Wheel center distance: 760 mm |
| I | Roof Strength | Test Load: 300 kgf | Applied area will be the weakest place of 600 x 300 mm longitudinal & transverse. Time duration: 5 minutes. |
| J | Rigidity (Transverse) | Test Force: 15240 kgf. (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 minutes. |
| K | Rigidity (Longitudinal) | Test Force: 7620 kgf (75 kN) | Hydraulic Cylinder load will be applied to side top rail through top corner fittings. Time Duration: 5 minutes |
| L | Weather Proofness | Nozzle: 12.5 mm (inside Diameter) Pressure: 100 kPa (1kgf/sq.cm) | Distance: 1.5 m Speed: 100 mm/Sec. |
| M | Tare Weight of Container | Nominated classification society / agency shall record the actual tare weight of container and proceed for further testing only if found within limit. | |

Note: R- Maximum Gross Weight T- Tare weight P-Maximum Pay load

13.3 CONTAINER IN MASS PRODUCTION –

IMPORTANT: Before lots are picked up for inspection from the mass production, classification society shall take a sample of 10% (ten percent) of the containers offered for inspection and verify their conformance as per the permissible weight range. Further sampling to draw containers for inspection would be done only after the weighment is found

to be within limits. If any deviations are observed in weightment, the entire lot shall be subjected to weight verification and the containers found suitable shall be formed as a lot and subjected to further checks.

Every container in mass production shall be manufactured under effective quality control procedures to meet the specified standards to meet the requirements of owner or classification society, and 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
- e) Tare Weight of container

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

- 13.4** On receipt of containers at the final destination of CONCOR, inspection/survey at CONCOR's terminals shall be carried out for identification of defects occurred during transportation (if any). A report called Condition Survey Report/ Equipment Interchange Report (EIR) shall also be prepared.

14. DOCUMENT SUBMISSION

- 14.1 WHEN CONTRACTING** -The supplier shall submit the FEM Analysis of container offered for supply, and specification with following drawing (2 sets): -

| | |
|---------------------|---------------------|
| General arrangement | Sidewall assembly |
| Base assembly | Rear end assembly |
| Roof assembly | Marking arrangement |
| Sealing arrangement | |

15. GUARANTEE –

This warranty shall remain valid for 12 months after the receipt of containers by purchaser from supplier or for 18 months from the date of issuing Inspection Certificate on readiness of the containers as per requirement works whichever period is concluded earlier (Refer: Point 5 of Amendment-1 of NOA).

- 16. MATERIALS** - The main materials used in construction are as follows or approved equivalent.

| Description | Material Used |
|----------------------|------------------|
| Fork pocket assembly | CORTEN A (SPA-H) |
| Cross member | CORTEN A (SPA-H) |
| Bottom side rail | CORTEN A (SPA-H) |
| Front Bottom Rail | CORTEN A (SPA-H) |
| Center rail | CORTEN A (SPA-H) |
| Floor support angle | CORTEN A (SPA-H) |
| Door gasket | "J-C" Type EPDM |

| Description | Material Used |
|-----------------------------|--|
| Gasket retainer | Pressed angle Stainless steel |
| Rivet | Stainless Steel |
| Door header | CORTEN A (SPA-H) |
| Door sill | CORTEN A (SPA-H) |
| Door panel | CORTEN A (SPA-H) |
| Door panel frame | CORTEN A (SPA-H) |
| Door hinge | S25C, Electro zinc plated |
| Door hinge pin | Stainless steel, SUS304 |
| Hinges Bushing | Synthetic nylon or bronze |
| Locking device | SCI 8569MN/SJ-66M/HH-EA/SL-F/1 or BE 2566MN or modified In-line type/ Bolt-on Type |
| Locking cam keeper | S20C, Electro zinc plated or to suit cam |
| Locking cam | S20C, H.D.G. or to suit cam |
| Locking rod | STKR41, H.D.G. |
| Shim | EPDM. |
| Front End Corner Post | CORTEN A (SPA-H) |
| Rear End Corner Post | CORTEN A (SPA-H) |
| Corner fitting | SCW49 |
| Lashing bar, lashing ring | SS41, Electro zinc plated |
| Side panel | CORTEN A (SPA-H) |
| Ventilator | labyrinth type plastic ventilators |
| Front End Wall | CORTEN A (SPA-H) |
| Top Side Rail | CORTEN A (SPA-H) |
| Roof panel | CORTEN A (SPA-H) |
| Roof Reinforcement Plate | CORTEN A (SPA-H) |
| Mild Steel Checker Sheet | Q235 |
| Floor screw | Electro zinc plated |
| Hot Rolled channel sections | SM50YA/SS50 or equivalent |

20FT HIGH CUBE (9.6FT) END OPEN 34T CONTAINERS**1.0 DIMENSIONS****1.1 EXTERNAL DIMENSIONS** - External Dimensions for Type-II of containers with Permissible Tolerance and Ratings should be as per **ISO 668**. The summarized details are as under:

| Length | | Width | | Height | |
|------------------------|----------------------------------|------------------------|------------------------------|------------------------|-----------------------------------|
| 6058 MM (+0, -6) MM | 19 Ft 10 ½ Inch (+0, -¼) Inch | 2438 MM (+0, -5) MM | 8 Ft. (+0, -3/16) inch | 2896 (+0, -5) MM | 9 Ft. 6 Inch. (+0,-3/16) Inch. |

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

1.2 DIAGONAL DIFFERENCE - The difference between the diagonal dimension for the container shall not exceed the following values as per table –4 (Dimension and tolerance relating to corner fitting locations) of **ISO 668**: -

| | |
|-------------------------------|-------|
| Roof, Bottom & Side Diagonals | 13 MM |
| Front & Rear Diagonals | 10 MM |

1.3 INTERNAL DIMENSION - Internal Dimensions for Type-II containers with Permissible Tolerance as per (Table –2) of **ISO 1496-1** are as under:

| Length (minimum) | Width (minimum) | Height (minimum) |
|---------------------------------|-------------------------|--|
| 5867 MM (19 feet and 3 inch) | 2330 MM ((91 ¾ inch) | Container External Height minus 241 MM (9 ½ inches) |

Note: Internal Dimension of Containers shall be large as possible but in any case not less than the values given in table above.

1.4 DOOR OPENING - The opening of door, preferably having dimensions equal to those of the internal cross-section (height and width) of the containers and, in any case, not less than the values given below:**AS PER TABLE –3, AMMENDMENT-1 OF (ISO 668)**

| Height | Width | Door opening |
|---------|---------|--------------|
| 2566 mm | 2286 mm | 270° |

1.5 TARE WEIGHT OF CONTAINERS:

The bidder should calculate and declare the container design tare weight and the manufacturing tolerance along with the drawings at the time of bid submission. The tolerance on tare weight shall not exceed ±2%.

Based on the declared design tare weight by bidder, CONCOR shall calculate the maximum and minimum allowable tare weight of individual containers. However, the maximum tare weight of any container shall not exceed the limit indicated in the table below.

It may also be noted that the containers outside the permissible weight range shall be rejected and not supplied to CONCOR. CONCOR reserves the right to check the tare weight of any container(s) at any stage during contract and can reject the container(s) if found out of the permissible range. If container(s) are rejected, the supplier shall be responsible to remove or dispose off such rejected containers from CONCOR premises as per Clause 4.8 Terms & Conditions, Section-III within allowable period.

MAXIMUM PERMISSIBLE TARE WEIGHT (UPPER LIMIT OF WEIGHT RANGE): 2850 Kg

2. RATING

| Title | KG |
|-----------------------------------|--------|
| Max. Gross Weight | 34,000 |
| Max Tare Weight | 2,850 |
| Tolerance on declared tare weight | ±2% |

3. CORNER PROTRUSIONS

- 3.1 The faces of the bottom corner castings protrude from lower faces of all transverse members in the base of the container by 17 MM (+0.5, -6.0 MM).
- 3.2 The upper faces of top corner castings will protrude above the highest level of the roof construction including corner plate by 6 mm.
- 3.3 The outer side faces of corner castings protrude from outside faces of corner posts by 3 MM.
- 3.4 Under load of 1.8 R-T, no part of the base will protrude more than 6 mm below the lower faces of the bottom corner castings.

4 MATERIAL AND CONSTRUCTION

4.1 GENERAL

The container is mainly constructed with steel frames, corrugated panel welded by CO₂, shielded Arc welding or superior welding process. All welds of the exterior including the base frames are continuous with full penetration. Interior welds can be intermittent with a minimum bead length of 25 mm for every 150 mm. Wooden flooring is fixed to the cross members by self-tapping screws. All crevices will be sealed with elastic sealing compound.

4.2 **MATERIALS** - The main constructional materials are shown in Clause 16 of the Specification.

4.3 **CORNER CASTING** - All corner casting used will comply with ISO/1161 Standard, supplied by a manufacturer who is approved by classification society.

4.4 **BASE STRUCTURE** - The base structure will be composed of two (2) bottom side rail, a number of cross members and one pair of forklift packets, which are welded together as a sub-assembly.

- 4.4.1 Bottom Side Rail (Main) -**
- | | |
|-----------|-----------------------------------|
| Qty | : 2 pcs |
| Shape | : double Z/Channel Section |
| Dimension | : 155X52X28X4.5 /162X50X30X4.5 mm |

Each bottom side rail (Main) 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.

- 4.4.2 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. There are 3 pcs of 4.0mm stiffeners in each joint member

| | |
|-----------|----------------------------|
| Shape | : "C" Section |
| Small | : 122X45X45X4.5 mm, 12 pcs |
| Large | : 122X75X45X4.5mm, 2 pcs |
| Stiffener | : 4.0 mm, |

- 4.4.3 FORKLIFT POCKET** - There will be a pair of forklift pocket in every container. Each forklift pocket consists of 2 pcs of cross members, one piece of top plate and 2 pcs of bottom plates. Each forklift pocket is designed according to ISO standard:

| | | | |
|--------------|--------------------|-----|--------------|
| Top plate | : 3mm thick, | Qty | : one piece. |
| Bottom plate | : 6.0 mm thick, | Qty | : 2 pcs. |
| Side Rail | : 122X45X45X4.5 mm | | : 4 pcs |

- 4.4.4 FLOOR CENTRAL RAIL** - A primed 4.0 mm thick flat steel loosely placed on top of the cross members to support the floorboards at the center.

- 4.4.5 FLOOR SUPPORT ANGLE** - A number of 25X25X3.0 mm thick angle steel will be placed beside the bottom side rails on the crossmembers to support the floorboards.

- 4.4.6 B.S.R. CORNER STIFFNER** - Four corner stiffener, 4.0 mm thick protection plates will be welded from side rail to corner castings.

- 5 FRONT END** - The front end will be composed of front end frame and corrugated panel, which are welded together as a sub-assembly.

- 5.1 FRONT END FRAME** - The front end frame will be composed of two corner posts, one top end rail (sub-assembly), one front bottom rail and four corner castings.

- 5.2 FRONT CORNER POST** - Each corner post is made of a 6.0 mm thick section steel pressing to ensure the suitable strength, light-weight and easy maintenance.

- 5.3 TOP END RAIL (sub-assembly)** - The top end rail is constructed with one "Z" shaped pressing steel plate of 4mm thickness. The inner part is extended inwards of the container certain distance with full width from front part of top corner castings.

- 5.4 FRONT BOTTOM RAIL** - The front bottom rail is built of 4.0 mm pressed steel and formed into open sections. The front bottom rail has 3 pcs inner vertical stiffener. Two channel section steel recesses are provided adjacent to the bottom fitting to prevent damage due to any twistlock misalignment.

| | |
|-----------------------------|--------------------|
| Front Bottom Rail Stiffener | : 4.0 mm thickness |
| Front Cone Damage Protector | : 200X75X9.0 mm |

- 5.5 FRONT PANEL** - The front panel is composed of CORTEN A (SPA-H) steel sheet fully vertically corrugated into trapezium section, butt joint together to form one panel by means of automatic welding

| | | |
|----------------------------------|------------|-----------------|
| Front panel thickness | : 2.3 mm | |
| Corrugation dimension- Outerface | : 110mm, | Depth : 45.6 mm |
| Interface | : 104 mm , | Slope : 18 mm |
| Pitch | : 250 mm | |

- 6 THE REAR FRAME** - The rear frame consists of one door header, one door sill, four corner castings and two rear corner posts.

- 6.1 REAR CORNER POST** - Each corner post is constructed from 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. Four (4) sets of hinge pin lugs are welded to each outer part of the corner post.

| | |
|------------|----------------|
| Inner Part | : 113X40X12 mm |
| Outer part | : 6.0 mm thick |

- 6.2 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 cam keeper's and an upper part of steel pressing rear header plate. They are welded together to form a box section to provide a high rigidity.

| | |
|-----------------------|-----------------------------|
| Door header lower | : 4.0 mm thick |
| Door header upper | : 3.0 mm thick |
| Door header stiffener | : 4.0 mm thick, Qty: 4 pcs. |

- 6.3 DOOR SILL** - The door sill is built of a special channel section steel pressing with internal ribs as stiffeners at the backside 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 to the upper face of the wooden floor. Two channel section steel recesses are provided adjacent to the bottom fitting to prevent damage due to any twistlock misalignment.

| | | |
|---------------------|-----------------|---------------------|
| Door sill | : 4.5 mm thick, | Slope : 1:10 approx |
| Door sill stiffener | : 4.0 mm thick, | Qty : 4 pcs. |
| Channel Section | : 200X75X9.0 mm | |

- 7 SIDE WALL ASSEMBLY** - The side walls will be continuously welded to each other and to the side rails and corner posts. Welding penetration side panels to rails should be min. 75%.

- 7.1 TOP SIDE RAILS** - Each top side rail is used a square steel pipe: 60X60X3.0 mm RHS

- 7.2 SIDE WALLS** - Each side wall will be composed of a number of sheets for the intermediate (inner) parts and other panels at each end of side wall, fully corrugated into trapezium section, but welded together to form one panel by automatic welding

| | | |
|-----------------|-------------------|------------------------------|
| Trapezium-Depth | : 36 mm | |
| Outerface | : 72 mm | |
| Interface | : 70 mm | |
| Slope | : 68 mm | |
| Pitch | : 278 mm, | Thickness of panel : 2.0 mm, |
| Qty | : 5 pcs/each side | |

- 8 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

| | | | |
|----------------|------------|-----------------|----------|
| Outerface | : 91 mm, | Interface | : 91mm |
| Slope | : 13.5 mm, | Pitch | : 209 mm |
| Camber upwards | : 5 mm, | Panel thickness | : 2.0 mm |
| Sheet Qty | : 5 pcs. | | |

- 8.1 ROOF REINFORCEMENT PLATE** - Four reinforcement plates shall be mounted around the four corner castings.

Thickness: 3.0 mm

- 9 REAR DOOR** - This consists of two door leaves, each leaf with two locking devices, four hinges, seal gaskets and door holders.

- 9.1 DOOR LEAF** - Each leaf consists of door panel, steel door frame which consists of vertical (inner & outer) and horizontal (upper & lower) rails. They are welded to form the rectangular door leave.

- 9.2 DOOR PANEL - with 5 corrugations:**

| | | | |
|-----------------|----------|-----------|---------|
| Panel thickness | : 2.0 mm | | |
| Depth | : 36 mm | | |
| Outerface | : 72 mm, | Interface | : 72 mm |
| Slope | : 68 mm | | |

- 9.3 DOOR FRAME**

| | |
|--------------------------|-------------------------------------|
| (a) Door vertical rail | : 100X50X4.0 mm (inner & outer) |
| (b) Door horizontal rail | : Channel Section 150X50X50X3.2 mm. |

- 9.4** Each door is capable of swinging 270 degrees when fully opened and can be secured in that position by means of door holder.

- 9.5** The right door is so designed that the right door must be opened before the left in compliance with T.I.R. requirements.

- 9.6 DOOR GASKET** - The door gasket is extruded EPDM with a double lip to ensure water tightness. The upper and side gaskets are of "J" configuration. Bottom is of a "C" type configuration. It is attached with sealant and secured with 1 mm stainless steel retainers by stainless steel rivets (stainless rivet and steel shaft). The Door gasket middle upper corner is overlap to left door area with wider outer lip.

- 9.7 HINGES AND PINS** - Four forged hinges, provided with bushed holes, are welded to each door leaf, each door is installed by hinge pins, washers and bushings.

| | |
|---------|--|
| Washer | : SUS304/Brass under the bottom of hinge |
| Bushing | : Bronze/Self- Lubricating Synthetic |
| Pin | : SUS304/Stainless Steel |

- 9.8 LOCKING DEVICE** - Two locking bars are secured to the door with nuts and bolts and has nylon bushings on the brackets. The locking devices will be hot dip galvanized to 75 micron and will be installed after the container is painted.

LOCKING DEVICE TYPE : SCI 8569MN/SJ-66M/HH-EA/SL-F/1 or BE 2566 MN
or modified in –line type/Bolt-on type

Locking Device Treatment : Hot –dipped Galvanised (thickness of 75 microns)

Locking Bar : 34 MM outer diameter & 3.2 MM wall thickness

10 FLOOR

- 10.1 THE FLOOR BOARDS** - The floor will consists of 01 layer of plywood and one layer of checkered plate. The plywood used will be certified to meet the requirement of Australian Commonwealth Dept. of Health (Plant Quarantine Treatment Schedule) for Timber Components (T.C.T.). The floor dimension should according to the IICL dimension standard. The plywood thickness is 28 mm. The checkered plate thickness is 3 mm.

- 10.2 ARRANGEMENT OF FIXING** - The plywood boards are longitudinally laid on the cross member with a free floating flat bar joint at the center and two angles steel along both side rails. The checkered plate is placed on the top surface of the plywood boards. The plywood boards and the checkered plate are tightly secured to each cross member with countersunk and self-tapping electro-zinc plated steel screws. And then the checkered plate is welded to the end rails and the bottom side rails respectively.

| | |
|-----------------|---------------------------------|
| Screws | : M8 x 45 x ϕ 16 (Head) mm |
| Screws Quantity | : 18 pcs (total number)/joint |
| | : 12 pcs (total number)/end |
| | : 8 pcs (total number)/other |

10.3 THE PLYWOOD USED WILL BE

- A minimum of 19 plies
- Thickness: 28 mm
- Moisture content: less than 14%

- 10.4 THE STEEL FLOOR** - The steel floor consists of 3.0 mm thick checkered steel plates and is laid on the plywood boards. These steel plates are butt jointed together to form one panel by automatic welding and then, intermittently welded to the bottom side rail and the front sill, continuous welded to the door sill.

- 11 SEALING** - Details to be submitted by bidder detailing the application of sealants. The drawings shall indicate details of sealing at:

- 1) Each perimeter of the floor;
- 2) All the overlapped joints of inside;
- 3) All the holes for bolts and nuts
- 4) Three sides of CSC plate and ventilators
- 5) Between door gasket and door panel at 200 mm above lower gasket.

Note: The application of interior sealant will be put on after water testing

Sealant Materials: a. Water borne sealant/Chloroprene (cargo contact area/exterior exposed area) Butyl (Hidden parts)

12 SPECIAL FEATURES

12.1 SHORING SLOTS: 60X40 MM slots are provided for on each of the rear corner posts so that a "2" thick batten can be secured to give protection against shifting cargo.

12.2.1 LASING RINGS AND LASHING BARS

1. Lashing Rings are welded to each bottom and topside rail at corresponding recessed area of sidewall. Lashing ring Qty./each or top side rail : 6 pcs, total 24 pcs.
2. Lashing bars are welded on each front and rear corner post lot. Lashing bars qty/each front & rear corner post : 3 pcs, Total 12 pcs.
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/lashing bar : electro zinc plated.

12.3 VENTILATORS- Two (2) ventilators should be small type fabricated from A.B.S. resin by injection molding process. They will be secured to the panel recess near right corner post of both side walls, by means of three (3) Aluminum Huck bolts.

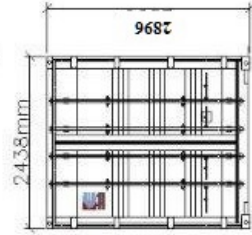
12.4 CUSTOMS SEAL PROVISION - Customs seal provision is made on locking handle and retainer in accordance with TIR requirements.

The customs seal will be adequately protected by means of a customs flap. The device on which customs seal shall be fixed

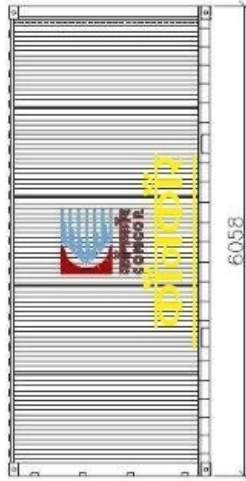
- Will incorporate holes not less than 11 mm in diameter
- Will be designed so that once the container has been closed and sealed the devices cannot be removed without leaving visible traces.
- Will be secured by welding.

| BASIC DIMENSIONS IN MM | | |
|------------------------|------|--|
| EXTERNAL LENGTH | 6058 | |
| HEIGHT | 2896 | |
| WIDTH | 2438 | |

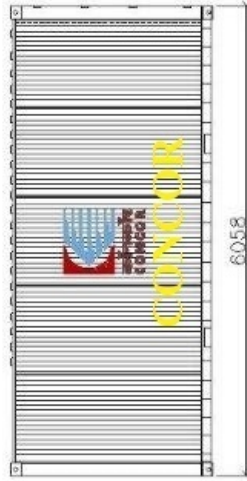
NOTE - FOR OTHER DIMENSIONS AND DETAILS REFER SECTION-V, TECHNICAL SPECIFICATIONS



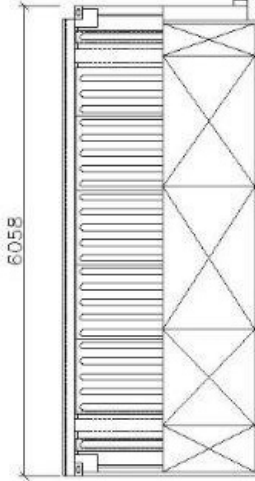
REAR VIEW



RIGHT SIDE VIEW



LEFT SIDE VIEW



TOP VIEW



FRONT VIEW

Tender Drawing
CONT/DCONT-11600/20 FT/HC/EO&SA/2019
20 FT HC (9' 6") EO (Type-III) 34 T Container



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