

Tender Ref No. : KAPP-3&4/C&MM/CAP/3898

(Technical Specifications & Drawings)

Item No.1 Confined Space model

Model of Confined Space Vessel

Model shall meet the following requirements

- Cut view from front side (90° from center of the cylinder) and it should be covered with transparent FRP sheet from the front site.
- Height: **07 feet.**
- Model with **wall thickness of 1.5mm**
- **Diameter of the tank-03 meter**, One man hole of circular shape shall be provided (**around 60 cm**) at the top of the tank.
- Material: **MS**

Model consisting of:

a) Tripod with winch & retractable fall arrest block, SWL of retractable fall arrest block shall be minimum **150 KG.**

- Telescopic legs
- Portable with carry bag
- Can operate for various depths of vessels/tanks
- Provides firm anchor
- Material of construction of tripod- Aluminum.

b) 2 No's of Torso dummy of **30 kgs** securely attached to retractable fall arrest block.

c) Model description board approx. size **2×2 feet.** (MOC of description board: MS)

d) Installation at KAPP-3&4.

e) Retractable fall arrest shall meet attached specifications.

S.no.			
1	Mechanical Properties	Breaking strength	15 kN
		Peak Load	Less than 6 kN
		Avg. locking Distance	0.4 mtrs
		Minimum Clearance	1.5 mtrs below user's feet
		Weight	Up to 7 kgs
		Temperature Range	-30°C to +50°C
2.	Swivel Snap Hook	Weight	400 grams
		Breaking Load	23 kN
		Gate Opening	18 mm
		Material	Alloy Steel
3.	Retractable Wire rope	Material	GI / SS Wire Rope
		Diameter	0.4 mm
		Min. Breaking Load	940 kg
		Core	Steel Core
		Ultimate Tensile Strength	1960 N / mm
4.	Confirming to EN 360:2002		

Item No.2 NDCT Model

Model of NDCT. **Height: 10 feet**. Model with wall **thickness of 02 mm**.

Material of Construction: **MS**

NDCT model dimension

- Racker column height- **0.4 feet** (A-type angle)
- Diameter at the top of racker column- **7.56 feet**
- Throat portion length- **5.87 feet**
- Diameter at throat length- **4.68 feet**
- Diameter at the top of the shell-**4.86**

Model consisting of:

a) Monkey ladder with safety cage of approx. **10 feet** height with landing platform of sufficient length and width shall be provided at half way.

b) Stainless Steel Safety Climb Equipment (including guiderail pipe, Lock sleeve body, C-section, joint piece and Ladder clamp) on the monkey ladder.

Properties of safety climb equipment

- 100% Positive locking
- Continuous movement with complete fall protection
- Corrosion free anodized Aluminum rail / GI Rails/SS
- Notches at regular intervals for fool proof locking

c) 2 No's of Torso dummy of **30 kgs** securely attached with the Safety Climb Equipment.

d) Model description board approx. size **2×2 feet**. (MOC of description board: MS)

e) Installation at KAPP-3&4 as per the attached specifications and drawing.

Item No.3 Transmission Tower Model

Model of Transmission Tower for (400 KV) line

- Height: **08 feet**.
- Material: **MS**

Model should meet following requirements

a) Aluminum Safety Climb Equipment with climbing steps, upper & lower ladder clamp

Properties of safety climb equipment

- 100% Positive locking
- Continuous movement with complete fall protection
- Corrosion free anodized Aluminum rail.
- Notches at regular intervals for fool proof locking

b) 2 No's of Torso dummy of **30 kgs** securely attached with the Aluminum Safety Climb Equipment.

c) Model description board approx. size **2×2 feet**. (MOC of description board: MS)

d) Installation at KAPP-3&4 as per attached drawing of transmission tower.

Item No.4 Horizontal Lifeline System

- a) Retractable fall arrest Block – 01 no.
- b) SS Detachable Trolley – 01no.
- c) SS 316, 08mm wire rope – 05mtrs.
- d) SS 316, Tensioner – 01no.
- e) SS 316 Cable Extremity – 01no.
- f) SS 316 Extremity Plates – 02nos.
- g) SS 316 Shock Absorber – 01no.
- h) Karabiner - 01 no.
- i) One Torso dummy weighted **30 KG** secured with retractable fall arrest block.
- J) Model description board approx. size **2×2 feet**. (MOC of description board: MS)
- k) Installation at KAPP-3&4.

Specifications of retractable fall arrest block as follows

S.no.			
1	Mechanical Properties	Breaking strength	15 kN
		Peak Load	Less than 6 kN
		Avg. locking Distance	0.4 mtrs
		Minimum Clearance	1.5 mtrs below user's feet
		Weight	Up to 7 kgs
		Temperature Range	-30°C to +50°C
2.	Swivel Snap Hook	Weight	400 grams
		Breaking Load	23 kN
		Gate Opening	18 mm
		Material	Alloy Steel
3.	Retractable Wire rope	Material	GI / SS Wire Rope
		Diameter	0.4 mm
		Min. Breaking Load	940 kg
		Core	Steel Core
		Ultimate Tensile Strength	1960 N / mm
4.	Confirming to EN 360:2002		

Item No.5 Pole-Climber-I-Beam Model

Model consisting

- a) 01 No. I-Beam Pole of height 8 feet material of construction of pole: MS
- b) Model description board approx. size 2×2 feet (MOC of description board: MS).
- c) 01 Torso dummy of 30 kg securely attached with pole-climber.
- c) Pole climber for I-beam shall meet the following requirements
 - Friction pad
 - Length adjusting frame
 - Shoe holders for left and right shoe
 - Nylon pad
 - Length adjusting knob

Item No. 6

Means of Access Equipment

- a) Retractable fall arrest block-06 meters as per attached specifications:

S.no.			
1	Mechanical Properties	Breaking strength	15 kN
		Peak Load	Less than 6 kN
		Avg. locking Distance	0.4 mtrs
		Minimum Clearance	1.5 mtrs below user's feet
		Weight	Up to 7 kgs
		Temperature Range	-30°C to +50°C
2.	Swivel Snap Hook	Weight	400 grams
		Breaking Load	23 kN
		Gate Opening	18 mm
		Material	Alloy Steel
3.	Retractable Wire rope	Material	GI / SS Wire Rope
		Diameter	0.4 mm
		Min. Breaking Load	940 kg
		Core	Steel Core
		Ultimate Tensile Strength	1960 N / mm
4.	Confirming to EN 360:2002		

- b) One Bosun (Boatswain) chair and One Painting kit with Ascender Descender.

Boatswain chair specification:

- Work seat with 12" × 24" × 1" Rigid board.
- Full body harness.
- Ergonomic.
- Build-in suspension D-ring.
- Durable polyester construction.
- Integral wear pads at contact areas.
- High strength corrosion resistant hardware.
- Compact and light weight design, weight in the range of 20 kg.
- Lifting capacity of the hoist 200 kg.

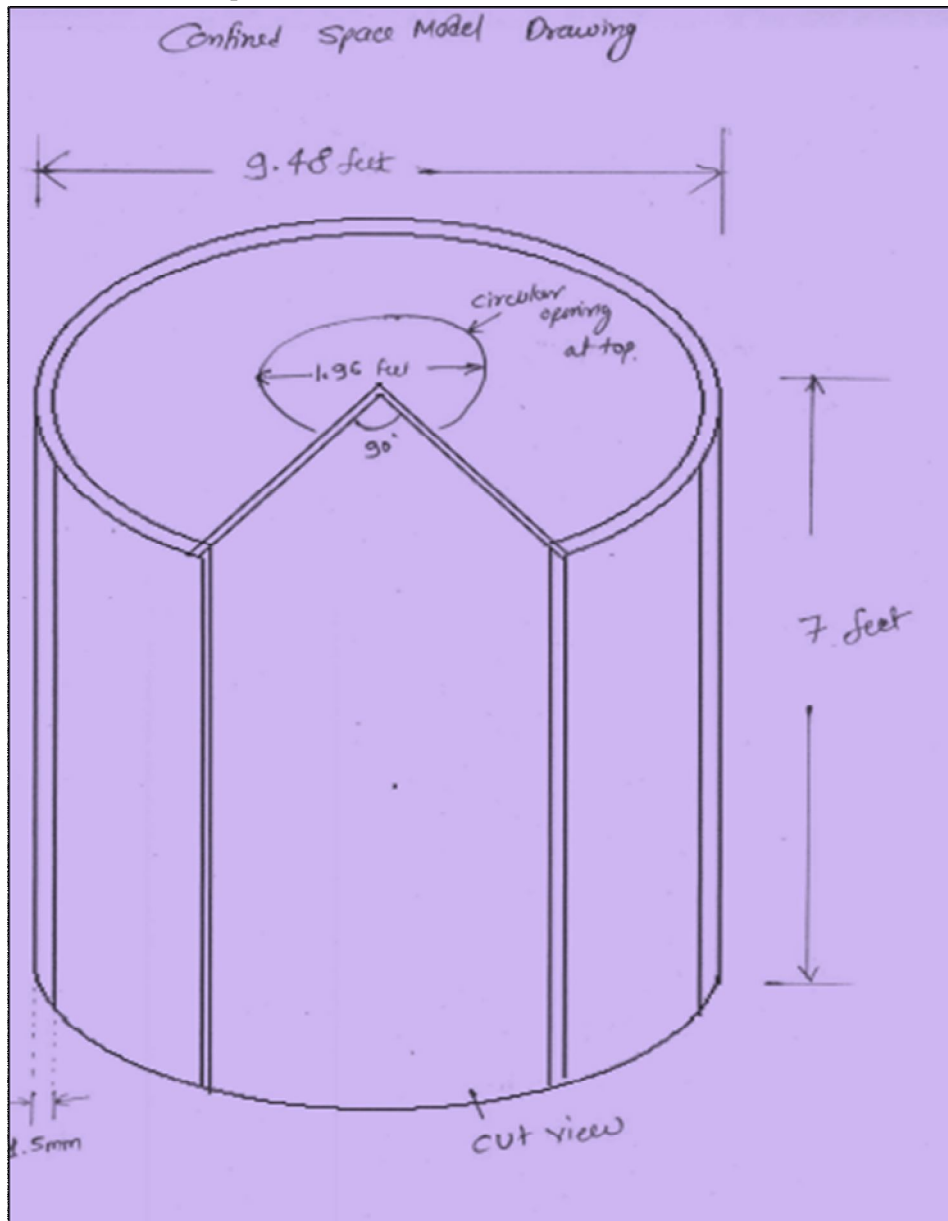
- 30 Meter 10.5 mm rope for descending.
 - One tool bag.
 - Karabiners.
 - Web slings.
 - Rope grabs arrester.
 - Kit bag.
 - Grip descender.
- c) Aluminum Wall Support Single Ladder Height 10 feet along with description board size 2×2 feet.
Specifications:
- C-section side rails 67mm strong side rails made up of high tensile aluminum alloy.
 - 63 mm fully serrated steps ensure anti- slip surface and firm grip placed at 10"/12".
 - Rubber shoes (End caps) high quality, thick and anti-skid end caps.
 - Conforming to IS: 3696 or EN standards.
- d) Aluminum Trolley Step Ladder Height 8-10 feet along with description board size 2×2 feet.
Specifications:
- C-section side rails 67mm strong side rails made up of high tensile aluminum alloy.
 - 63 mm fully serrated steps ensure anti- slip surface and firm grip placed at 12".
 - 4 no's of swivel type wheels with break for easy maneuverability.
 - Hand rails up to top platform.
 - Aluminum slip resistant platform of 18" × 24" on top for convenient standing.
 - Heavy Base.
 - Conforming to IS: 3696 or EN standards.
- e) Aluminum A-Type Ladder Height 8-10 feet along with description board size 2×2 feet.
Specifications:
- C-section side rails 67mm strong side rails made up of high tensile aluminum alloy.
 - 63 mm fully serrated steps ensure anti- slip surface.
 - Rubber shoes (End caps) high quality, thick and anti-skid end caps.
 - Aluminum slip resistant platform 10" × 16" on top of the ladder.
 - Folding sway protectors.
 - Conforming to IS: 3696 or EN standards.
- f) Aluminum Extension Ladder Height 8-10 feet along with description board size 2×2 feet.
Specifications:
- C-section side rails 67mm strong side rails made up of high tensile aluminum alloy.
 - 1" round step corrugated steps ensures anti-slip surface and firm grip placed at 10"/12".
 - Rubber shoes (End caps) high quality, thick and anti-skid end caps.
 - Extension locking device (aluminum casted catcher lockable at every rung)
 - Rope and pulley (for convenient extension and retraction of fly section of the ladder)
 - Conforming to IS: 3696 or EN standards.
- g) Mobile Scaffolding with stabilizer Max Height 2.5mtrs.
Specification of mobile scaffolding
- Scaffolding width: 0.75 m; 1.35 m

- Scaffolding length: 2.50 m
- 200 kg/m² loading capacity i.e. depending on platform length from 270 kg to max.810 kg
- 4 nos. Swiver Castors with Height Adjusters
- 4 nos. Triangular Stabilizer
- Guardrail End Toe Board on working platform
- Diagonal braces
- Confirming to IS -3696 or EN standards.
- Test certificate shall be attached.

Note: All installation related material shall be brought by the supplier selected for P.O; NPCIL won't provide any material and facility.

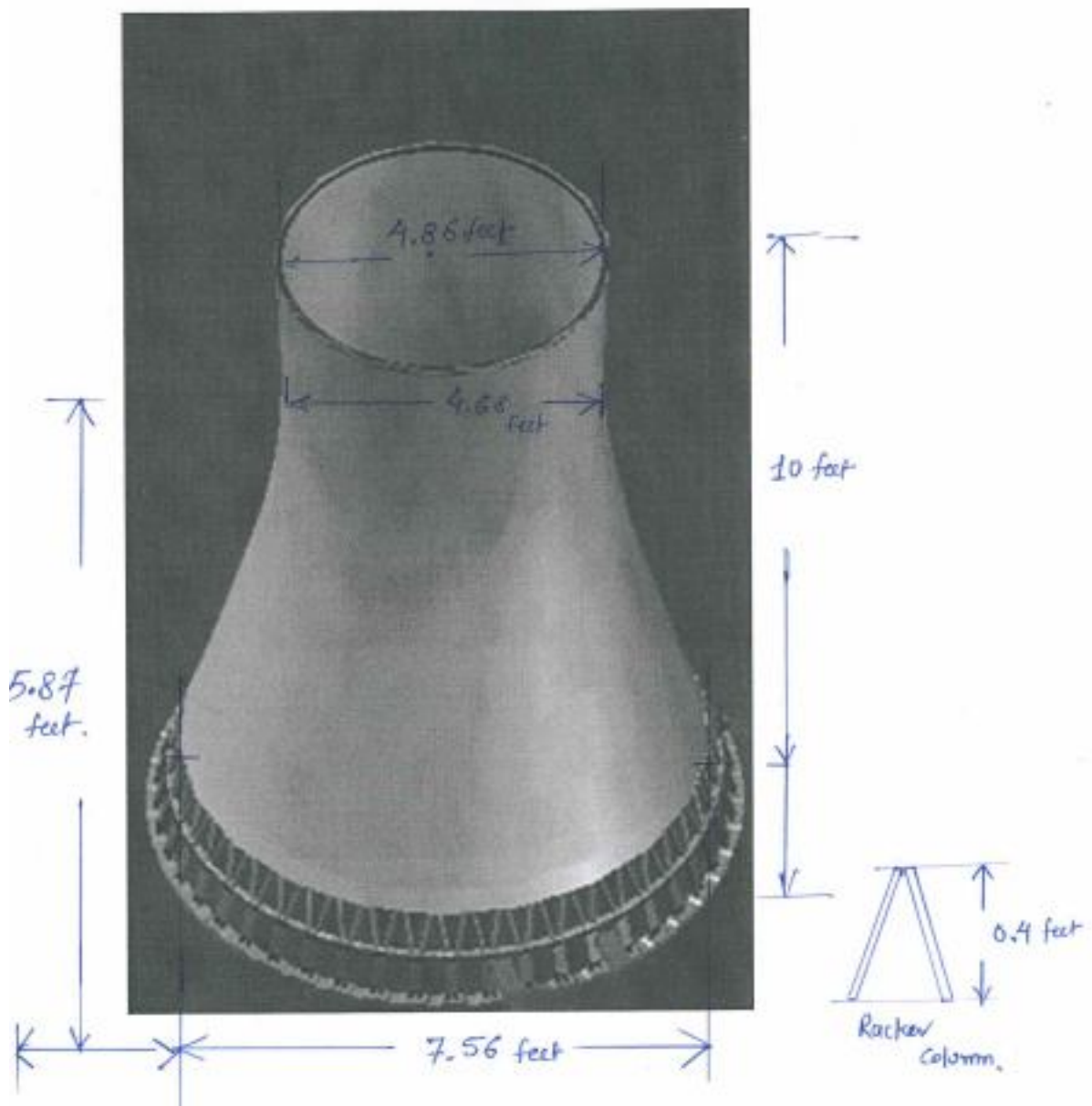
Sketches of the models are as follows

A) Confined Space Model

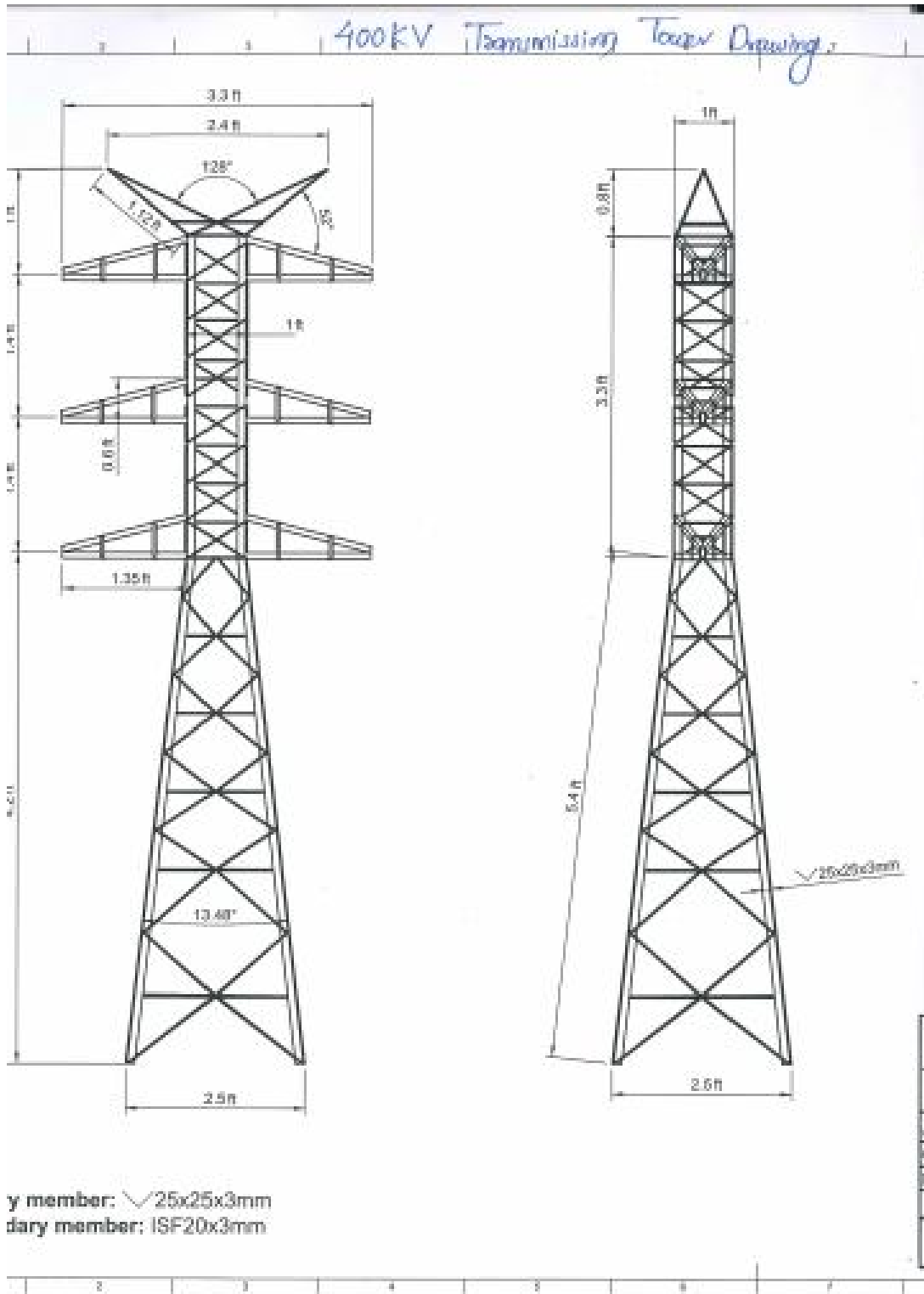


B) NDCT Model

NDCT model rough drawing



Sketch of transmission tower (400



KV)