WORLD
COMMUNICATION TOWERS

WORLD COMMUNICATION TOWERS

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MOBILE **TOWER** TRAILERS

INNOVATIVE COMMUNICATION **SOLUTIONS.**

World Communication Towers designs, fabricates and builds world-class mobile tower systems. From our location in Kaufman, Texas, we build and ship our mobile tower systems across the globe.

With over 30 years of experience, two patents, and state-of-the–art design, World Communication Towers is ready to support your mobile tower needs wherever you are in the world.

SUPERIOR **ENGINEERING**

The combination of our skill sets and experience has resulted in the development of mobile communication towers that are engineered with industry leading functionality, durability, and reliability.

BUILT TO **LAST**

Galvanized, 2 3/8" OD schedule 40 steel pipe with a 36" base spread gives us a super strong tower structure, while providing unprecedented protection against the harshest environments.

WE SHIP **WORLDWIDE**

From our headquarters in the Dallas/Fort Worth area of Texas, we have multiple transit options to ship our mobile tower trailers to you anywhere in the world. Need it quickly? Ask about our in-stock inventory.

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1. INTRODUCTION

PORTABLE TOWERS FOR MOBILE COMMUNICATIONS

World Communication Towers (WCT) designs, fabricates and builds world-class mobile tower systems (MTS). From our location in Kaufman, Texas, we build and ship our mobile tower systems across the globe. Our Cell on Wheels (CoWS) solutions include the tower, trailer, and rigging. Highly portable, and quick deployment make our tower systems ideal for temporary communications. The WCT MTS tower is a self-supporting and guy capable, telescopic, lattice structure with fully erected height of approximately 89' [27.1m] up to 106 feet [32.3m] above ground level (AGL).

1.1 PRODUCT SUMMARY FOR OUR 89 FOOT TOWER

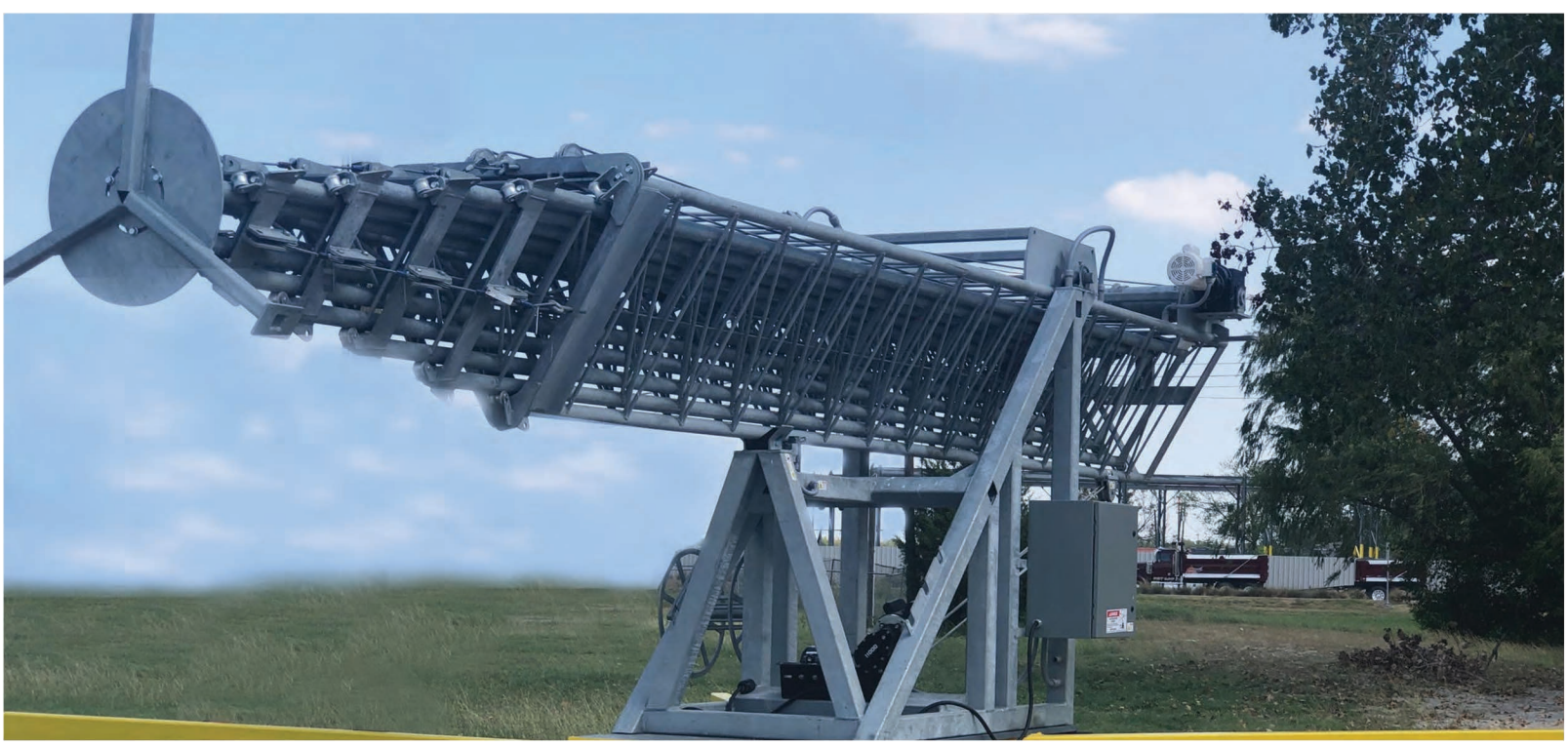
TRAILER	A multi-terrain trailer with a standard 14,000 lb. [6363kg] capacity GVWR and 5,000 lbs. [2272kg] of available deck top payload; tandem *7,000 lb. [3181kg] capacity each*, heavy-duty axles all wheel electric or hydraulic brakes, telescopic outrigger stabilizing system, standard 12VDC *arctic/desert wiring and LED lighting package*, tow compatibility with HD ¾, standard 1-ton or larger tow vehicle *(please check individual vehicle ratings)*; integrated tie down provisions, leveling devices, storage containment
TOWER	A 89'/27.1m heavy-duty, self-supporting and guy capable telescopic tower, fully automatic, galvanized steel lattice structure, redundant cabling for increased safety factor; eyed power panel access, integrated safety features
DRIVE	Heavy-duty, direct drive, TEFC Wash Down rated motors and gearbox tower tilt and erection assemblies; tilt and telescopic functions designed for top payloads up to 1,600 lbs. [725kg] at 120VAC, limit switch-controlled tower-operating functions

These WCT MTS models utilize a standard 14,000 lb. [6363kg] capacity Gross Vehicle Weight Rating (GVWR), heavy duty multi-terrain trailer and tower system designed to transport its integrated payload and support at site and/or customer supplied equipment in an approximate 10' 10"L x 6'8" "W x 4' H deck area. As designed, the trailer's skeletal frame is engineered with a minimum factor of safety of 2:1, with 4:1 in critical load areas. The lattice design, hot galvanized steel, telescopic tower, comprised of ~21' 0" [6.4m] sections, is designed to transport horizontally over the trailer's forward deck, automatically tilt using a separate 1.5HP electric motor and raise tower to its fully extended height, utilizing a separate, single stage, 1.5HP, electric winch motor/gearbox assembly. These towers are capable of being deployed, elevated to its full-extended height by one person in under 30 minutes, and can be further secured by an available mechanical tower lock mechanism

1.2 STANDARD FEATURES FOR OUR 89 FOOT TOWER

89' [27.1m] Self-supporting/Guy-capable structure
1,100 lb. Standard tower tilt and lift capacity (no cranes)
Multiple limit switch controls: Tilt, erection and retraction
Hot-dipped galvanized lattice tower sections
5/16" and 3/8" 7 x 19 Galvanized aircraft-quality cables
Motor protection devices
Solid State control box circuitry' Locking NEMA box
Min. 1.5hp motor/gearbox assemblies; All weather rated
Direct drive winch/motor assemblies – no belts, no chains
Coax/Cable rings (optional – per customer specs)

Positive pull down and redundant cabling systems
Standard 120V 60Hz/1PH power supply requirement (240v optional)
Mechanical lock for additional tower safety (option)
3-Arm “T” – bar style 120° antenna mount assembly (4-arm optional)
Multi-level/3-point guy cable and ground anchor kit
Heavy-duty galvanized steel throughout structure



2. GENERAL TOWER SPECIFICATIONS FOR 89 FOOT TOWER SYSTEM

WORLD COMMUNICATION TOWER SELF-SUPPORTING AND GUY CAPABLE 89' TOWER SYSTEM

The WCT MTS tower is a self-supporting and guy capable, telescopic, lattice structure with fully erected height of approximately 89' [27.1m] above ground level (AGL). This is a self-supporting tower with no guy wires required for a given combination of payload (weight, sail area and mounting height) and wind velocity. Guying, to outriggers or to ground anchors, along with installation of tower locking mechanism, is always recommended when the tower is to be left in any location for an extended period of time, or if personnel will be climbing the structure. All anchors, guys and hardware are provided as part of the standard equipment.

The towers are comprised of 21-foot each [6.4m], heavy-duty, hot-dipped galvanized steel telescoping lattice sections mounted to welded and hot-dipped galvanized square tube base support structure that is bolted to shear plates protruding from the trailer's structural platform. The tower is tilted to the vertical position by a 1.5HP Totally Enclosed Fan Cooled (TEFC), Wash Down rated, direct drive stainless shaft winch motor and gearbox assembly utilizing a 3/8" 7 x 19 GAC Galvanized Aircraft Cable and automatically erected by a 1.5 HP Totally Enclosed Fan Cooled (TEFC), Wash Down rated, direct drive stainless shaft winch and gearbox assembly, utilizing a heavy-duty winch drum with a 3/8" GAC Galvanized Aircraft Cable and a 5/16" 7 x 19 GAC redundant safety cable. In addition, the redundancy of the tower cabling configuration and a positive pull-down system provide for securing/supporting of each induvial interior tower section by a series of three (3) independent cables. The engaging of an optional mechanical tower lock mechanism further ensures the safety and stability of the erected tower.

To help protect the tower from operator attempts to elevate tower while in transport mode; potentially causing serious structural damage and/or personal injury, an electronic safety limit switch has been installed to help eliminate this possible occurrence. Additional limit switches prevent tower from being tilted when fully erected and to prevent over-extension of tower during erection.

The tower's tilt and telescoping functions are automatically engaged and disengaged by the use of tower and base mounted electronic limit switches. Contained within a locking NEMA 4 enclosure, a proprietary control system utilizes a **120VAC or 240V/60Hz/1PH** power supply to operate the tower and a digital voltmeter to make sure the correct voltage is supplied to the system. **To protect the tower's electronics from exposure to the elements, control switches are accessible through an integrated weather protecting outside panel.**

SPECIFICATIONS

Equipment Install Area:	± 14' 2" [4.31m] Long x 6' 8" [2.32m] Wide x 4' [1.22m] to 7" [2.34] High
Overall Trailer Length:	± 25' 7" [7.79m]
Overall Trailer Width:	± 7' 7" [2.31m]
Overall Transport Length:	± 33' 9" [10.28m] (includes tower down, bottom extended past trailer rear)
Overall Transport Height:	± 10' [3.048m] Not including antenna C-Channel mount 10' 8" [3.25m]
Overall Deployed Footprint:	± 20' [6.10m] W x 33' 9" [10.28m] (includes extended outriggers)
GVWR:	14,000 lb. [6363kg] capacity

Payload:	4,700 lb. [2136kg] capacity
Axles:	7,000 lb. [3181kg] each, Tandem axles, heavy-duty, hub grease
Brakes:	All Wheel Electric (12v); breakaway with battery backup
Tires:	Four (4) ST 235/80 R16 LRE 10-ply
Wheels:	16" Steel Wheels, 8-hole
Suspension:	14,000 lb. [6363kg] spring capacity, underslung
Platform Length	+ 21' 1/2" [6.41m] over axle area
Platform Width:	+ 7' 2" [2.18m] wide at rear
Platform Decking:	+ 1/8" [3mm] steel diamond plate drawbar and rear operating platform
Platform Height:	+ .33" [.84m] over axle area, + .26" [0.66m] drawbar trailer deck
Outriggers:	(2) +5' 7" [1.70m] each forward deck mounted telescopic outriggers and (2) rear deck, multi-stage, 5' 7" [1.70m) telescopic, locking stabilizing outriggers ~ each with 8,000 lb. [3636kg] static capacity adjustable jacks
Towing Device:	2-5/16" ball coupler (Optional: NATO pintle eye)
Landing Gear:	Single 15,000 lb. [6818kg] static capacity, adjustable, drop-leg jack
Tow Safety Chains:	5/16" [7.5mm] P-70 style with hooks
Spare Tire Carrier:	Spare Tire carrier mounted beneath or on top of the deck platform
Lift/Attachment Rings:	Two (2) pair 1" minimum, "D-ring" style, 10,000 lb. [4545kg] each rating
Jack Storage:	Stored in locking toolbox
Lights/Wiring:	Arctic/desert wiring and LED lighting package (12VDC), modular harness wiring and connectors, civilian SAE 7-blade vehicular connector
Spare Tire:	Full size ST 235/80R16 LR E10-ply mounted to 8-hole wheel
Storage Box:	Trailer-deck-mounted locking storage box
Bubble Levels:	Two (2) trailer-mounted levels, one (1) on trailer perimeter and one (1) at rear

Grounding Lugs:	Four (4) trailer-mounted grounding lugs
Trailer Finish:	Multi-part industrial primed and painted trailer structure – black
Trailer Deck Finish:	Impact resistant and weather protecting non-slip coating sprayed over the trailer's deck-top operating platform

GENERAL TOWER SPECIFICATIONS

Tower Height Nested	+ 28' 0" Vertical Nesting	5" Horizontal Nesting 0" Vertical Nesting	--
Guyed Antenna Area – Max Wind	Contingent on Client Load	Max. Est. To 125 MPH	Actual Rating Per Client-specific Load
Self-Support Area – Max Wind	Contingent on Client Load	Max. Est. To 75 MPH	Actual Rating Per Client-specific Load
Maximum Wind Speed at Erection	--	--	Max to 30 MPH
Payload Weight at Top of Tower	--	--	1600 - 2000 LBS
Payload Weight at Top of Tower During Tilt	--	--	1100 LBS
Erection/Retraction Speed	--	Single Stage Process	Direct Drive + 7.9 Min @120VAC/60Hz
Tilt Speed	--	1.5 HP Cable Winch	Direct Drive + 5 Min.
Power Requirement to Operate Tower	--	Electric Drive System	120V/60Hz/1PH (or 240V)
Erection/Retraction Motor HP	--	Direct Drive - 120V/60Hz	1.5HP, 1-Phase ~Single Stage Config.
Scope/Motor and Gear Box Ratio	--	--	Direct Drive (Min. 900:1)

STANDARD MATERIAL SPECIFICATIONS

Legs - Mechanical, Tubing, Seamless and Welded (NOT PIPE)	HSS ASTM DOM 1026 Alloy/A513 ~ 70-95 Ksi Yield Strength
Structural Shapes Solid Rod, Bars, Angle, Etc.	ASTM A-36 ~ 36 Ksi Yield Strength
Structural Steel Square Tube	ASTM A-500 ~ 50 Ksi Yield Strength
Horizontals - Flat Bar	ASTM A-36 ~ 36 Ksi Yield Strength
Welded E70 Electrode	AWS D1.1 Latest Rev.
Hot Dipped Galvanize All Steel - ASTM A-123	ASTM A513 Mechanical Tubing
Hardware/Bolts	ASTM F1941 SAE Grade 8

2.1 DESIGN AND CONSTRUCTION STANDARDS

All work shall be in conformance with the requirements of the Uniform Building Code (UBC), and structural requirements of the Telecommunications Industries Association (TIA) – Electronic Industries Assoc. – TIA-EIA 22-G

Steel fabrication shall conform to the requirements of AISC Manual of Steel Construction/Electronic Industries

All tower tilt/lift/support cables shall be minimum 5/16" and 3/8"" 7 x 19 galvanized steel aircraft quality

Structural and Engineering Analysis/Methodology for PE Report – If Authorized by Client:

A rigorous Finite Element Analysis program may be utilized to perform a stress analysis review to determine tower member design in conformance to the ANSI/TIAEIA 222-G Standard requirements for client's specific payload configuration (weight and sail area). PE certifications are performed. Upon customer request.

2.2 TOWER PARTS

Channel (8") with 2 Pulleys (6")	Pipe: 2" sch. 40	5/8" Round Rod
Drive drum (6") set up for 2 drive cables	3/8" x 4" flat bar for pullies	Brackets
Main cables 3/8" x 124" long	Center cable 5/16" x 140' long	4" channel pulley support
Pulley support brackets with pulleys in towers 2,3,4,5	Main cable drum is 29 ¾" long with a divider ring in the middle to keep the 2 single cables separated	2 single cables lift the tower, giving more safety to hold tower, less weight on the cable and more lifting capacity
Center cable drum is 7" x 30 ¾"	Tower lift motor assembly 1 ½ hp	Volt 120 @1725 rpm
12 cables 5/16" x 19' 9.5"	Tower has 4 limit switches	Tailing drum: 7" x 30 ¾"
Up limit switch	Lower limit switch	Section one has two (2) 6" pulleys
Eight (8) pulleys sandwich a 3.5" or 4"	Each section has 1 ½" x 2" rollers and 2" x 2.5" rollers	Tower section 2 has six (6) 5" pulleys sandwich top antenna mount bracket
Base frame 4" x 4" square tubing	3/8" gussets	10 x 3/8" channel
Winch motor 1 ½ hp, 120 volts with cable doubled for better lifting over tower and pay load	Three (3) 3" cables 3/8"x12" pivot plates	1 Electrical box
Cable spool	3 Augers	2 Limit switches, 1 is the nesting switch, 2 is the resting switch

2.3 TOWER SECTIONS

The towers are comprised of 21foot each [6.4m], heavy-duty, hot-dipped galvanized steel telescoping lattice sections mounted to welded and hot-dipped galvanized square tube base support structure that is bolted to shear plates protruding from the trailer's structural platform.

Tower Section	Face Width	Length	Tube O.D./Wall Dom.	Diagonal Brace/Rod	Weld
5	14.125"	21' 0"	2.375" x .154"	5/8"	¼" to 3/8"
4	19.5"	21' 0"	2.375" x .154"	5/8"	¼" to 3/8"
3	24 2/4"	21' 0"	2.375" x .154"	5/8"	¼" to 3/8"
2	30"	21' 0"	2.375" x .154"	5/8"	¼" to 3/8"
1	37"	21' 0"	2.375" x .154"	5/8"	¼" to 3/8"

2.4 ADDITIONAL TOWER CHARACTERISTICS AND FEATURES

- Two (2) cable lifting system for safety and lifting payload
- The WCT MTS models presented herein are standard products
- The tower includes mechanical section guides to ensure minimum friction and play between tower sections during deployment and operation
- A complete guy package (anchors, guy cables, hardware) is provided as part of the standard MTS
- A 3" Arm", 120-degree rotatable antenna mast is provided as part of the standard MTS (additional arm and beam designs are available as options)
- Two (2) tower lift, pull-down and section support cables shall be comprised of both 5/16" and 3/8" 7 x 19 galvanized steel aircraft quality cables
- In case of a loss of power, the tower comes equipped with a manual method for lowering the tower from the full or partially raised state to the stowed and transport configuration
- A minimum of three (3) guide rings shall be provided on the tower for client's cables

2.5 TOWER CONTROL PANEL AND ENCLOSURE: STANDARDS AND COMPLIANCE

- Ul 50 AND Ul50e Types 1, 2, 3, 3R, 4, X, 12 and 13
- CSA C22, No. 94, Types 1, 2, 3, 3R, 4, X, 12 and 13

<u>Complies with:</u>

- NEMA Types 1, 2, 3, 3R, 4, X, 12 and 13
- IEC 60529 Type IP66

3. TRAILER SPECIFICATIONS

A multi-terrain trailer with a standard 14,000 lb. [6363kg] capacity GVWR and 5,000 lbs. [2272kg] of available deck top payload; tandem 7,000 lb. [3181kg] capacity each, heavy-duty axles all wheel electric or hydraulic brakes, telescopic outrigger stabilizing system, standard 12VDC arctic/desert wiring and LED lighting package, tow compatibility with HD ¾, standard 1-ton or larger tow vehicle *(please check individual vehicle ratings)*; integrated tie down provisions, leveling devices, storage containment.

3.1 DESCRIPTION

These WCT MTS models utilize a standard 14,000 lb. [6363kg] capacity Gross Vehicle Weight Rating (GVWR), heavy duty multi-terrain trailer and tower system designed to transport its integrated payload and support at site and/or customer supplied equipment in an approximate 10' 10"L x 6'8" "W x 4' H deck area. As designed, the trailer's skeletal frame is engineered with a minimum factor of safety of 2:1, with 4:1 in critical load areas. The lattice design, hot galvanized steel, telescopic tower, comprised of ~21' 0" [6.4m] sections, is designed to transport horizontally over the trailer's forward deck, automatically tilt using a separate 1.5HP electric motor and raise tower to its fully extended height, utilizing a separate, single stage, 1.5HP, electric winch motor/gearbox assembly. **These towers are capable of being deployed, elevated to its full-extended height by one person in under 30 minutes, and can be further secured by an available mechanical tower lock mechanism**

3.2 STANDARD TRAILER FEATURES

GVWR 14,000 lb. [6363kg] capacity
Dual 7,000 lb. HD axles; 14,000 lb. suspension, grease hub
Transport length: 33' 9"; Transport height: 10'; Width: 8.5'
Trailer length: 25' 7"; Trailer width: 7' 2", Deck height: 33" to 34.5"
Customer Equipment Area – Approx. 14' 2" x 7' 2" x 4' to 7' H
Solid steel construction – Min. 50Ksi yield strength
10" I Beam
Weight (w/o client-furnished equipment) ~ 9,200 lbs. [4181 kg]
Customer equipment capacity: Approximately 4700 lb. [2136 kg]
1/8" [3mm] Steel diamond plate welded platform decking
Four (4) HD telescoping outriggers; 8,000 lb. [3636 kg] leveling jacks
Electric brakes (12V); ST235/80R16 LRE 10-ply tires
Full sized spare tire with 16" x 6x 8 hole disc wheel
15,000 lb. Static load, drop-leg adjustable trailer jack
Deck-over-axle configuration; Underslung
Arctic/Desert wiring-12V; Ground lugs, lift/attach rings
Emergency break-away device; LED lighting package
2-5/16" ball coupler or pintle-eye; P-70 chains and hooks
7-blade truck connector, operating/maintenance manual
DOT Safety decals; Reflectors; Multiple trailer levels
Locking storage box and jack brackets
Black painted: Optional impact/weather-resistant coating

3.3 ADDITIONAL TRAILER CHARACTERISTICS

- The trailer weight is in accordance with industry practice for similarly loaded trailer configurations
- The trailer includes level indicators on two planes that are easily visible from the ground
- Leveling jacks are installed on the trailer to compensate for up to a 5-degree ground slope over the trailer length
- The height of the outriggers is adjustable by use of the leveling jacks to compensate for variations in terrain; outriggers include a locking mechanism and lanyards to ensure their safe transport
- The trailer is equipped with a minimum of four (4) ground lugs
- Adequate protection for metal-to-metal surfaces is provided; protective sand/marsh pads to prevent surface damage under varied environmental conditions is provided
- Lanyards and/or locking mechanisms are provided on equipment/components as necessary and are designed to minimize wear on adjacent surfaces
- The trailer includes a locking storage box providing adequate space for optional guy assemblies and related tools
- All trailer-mounted equipment and accessories requiring periodic operation or maintenance is easily accessible
- All surfaces that may collect water shall have drain holes where necessary
- All non-metallic material shall be UV resistant

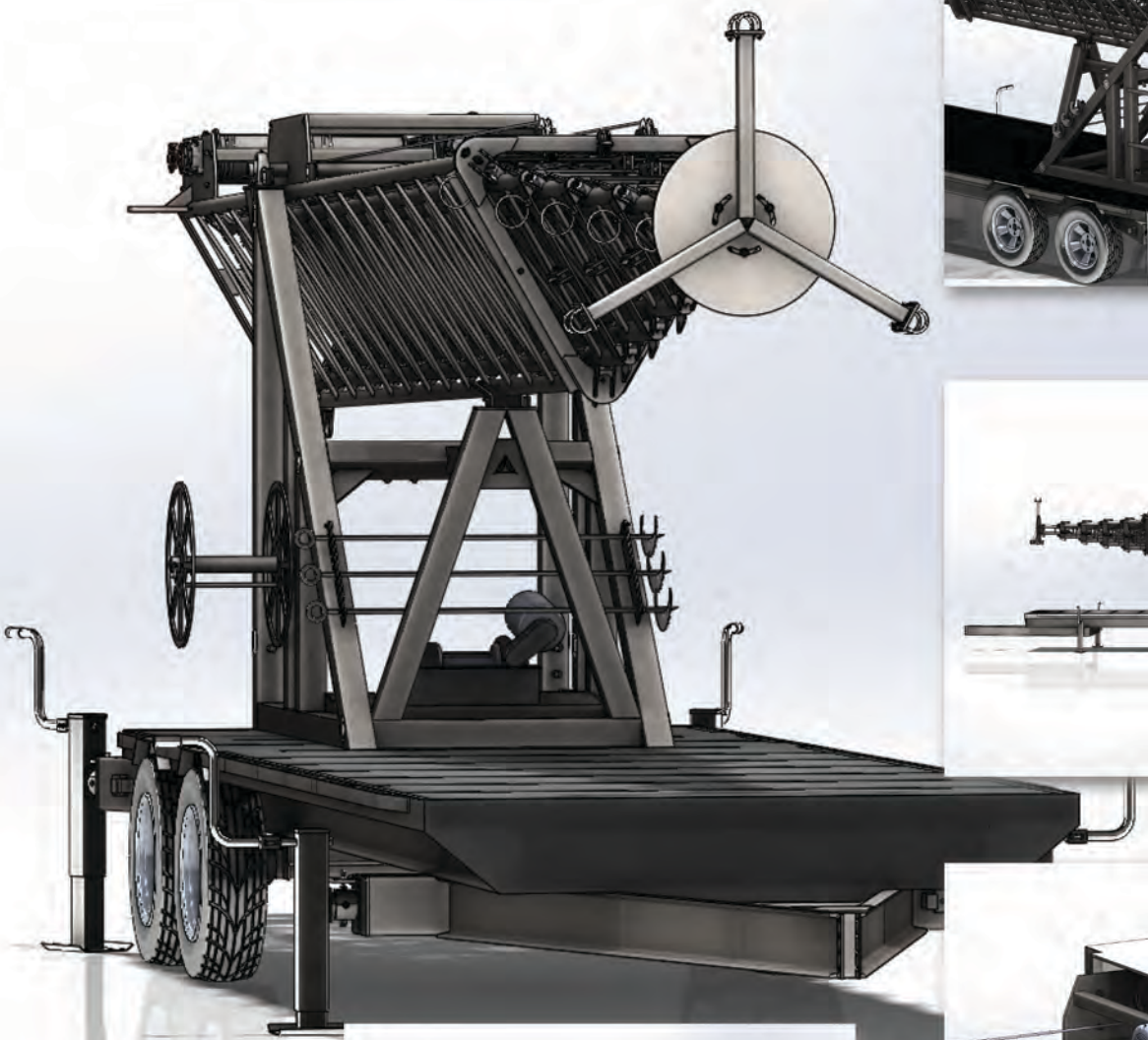
These trailers are constructed from longitudinal monolithic structural steel members and shall be straight within +0.50" or less when in a loaded road transport configuration. The trailer structure, axles and brake assembly shall withstand stresses encountered during the transport configurations described above. A structural safety factor of 2.0 times (up to 4 times for critical load areas) shall be applied to the design of the trailer.

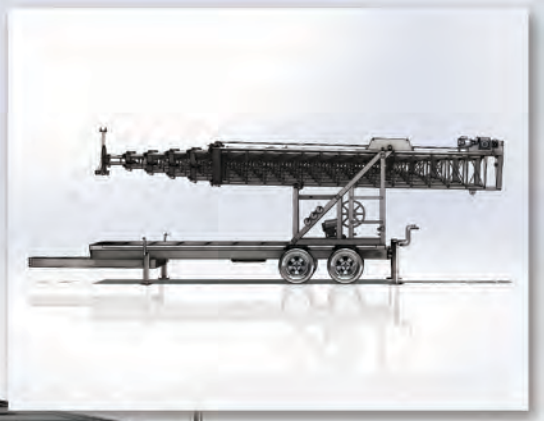
3.4 TRAILER SUMMARY

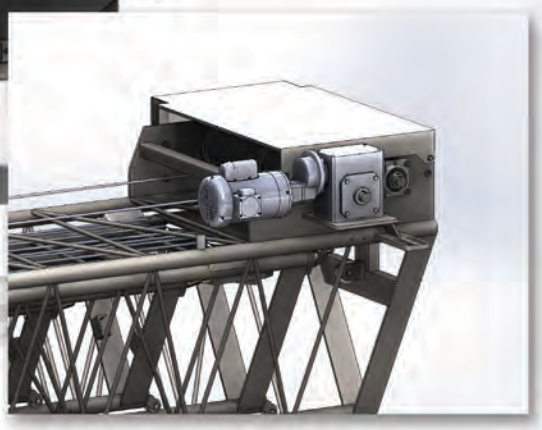
This trailer is built to meet applicable DOT and United States Federal Vehicle Safety Standards at time of manufacture. The trailer total length is approximately 25 7" long, with a 7' 7" wide rear deck, has an overall transport length of approximately 33' 9" and a transport height of approximately 10' 6". The trailer has a single platform design, is constructed of solid steel with extra heavy-duty main and perimeter frames and is engineered to support imposed loads as well as withstand all terrain application (steel yield strength-minimum 50ksi). The trailer unit's structural frame and under-carriage are primed and painted black. The unit has a Gross Vehicle Weight Rating (GVWR) or 14,000 lbs. and an estimated base transport weight without installed accessories of 8,900 lbs. [4045kg]. When deployed, two (2) deck forward telescopic outriggers, approximately 5' 7" each, coupled with two (2) 5/7" each, bumper extending, telescopic steel tube outriggers support and stabilize the tower trailer unit with the use of detachable 7,000 lbs. lift and 8,000 lbs. static capacity each drop-leg, leveling jacks.

This trailer utilizes tandem, heavy-duty axles – 7,000 lb. capacity each, 14,000 lb. capacity, underslung, spring suspension, electric brakes on all wheels, four (4) ST235/80R16 LR E 10-ply tires mounted on 16" 8-hole wheels, a deck or under-carriage installed spare tire mounted on an 8-hole wheel and 15,000 lb.

static capacity, drop-leg front jack. The trailer's rear platform is approximately 33" high. A minimum 14,000 lb. capacity 2-5/16" adjustable ball coupler or 3" NATO pintle eye towing device may be utilized with 2-5/16" P-70 safety chains with hooks. Trailer units include a 12V DC arctic/desert wiring and LED lighting package DOT-compliant sealed wiring harness, a civilian SAE 7-way plug, multiple lift/attachment rings, an emergency trailer breakaway device with battery and charger, a locking storage box, and perimeter grounding lugs.







4. TOWER TRANSPORT

Designed to be transported by air, land, sea and rail, World Communication Towers can deliver our mobile towers anywhere in the world.

4.1 TOWER TRANSPORT CAPABILITIES

AIR:	C-17, C5
LAND:	All-wheel, 2 or 4-wheel drive truck or long-haul flatbed (height permit may be required for flatbed transport)
SEA:	As deck or hold cargo
RAIL:	Transportable by rail (with carrying car designated as special handling)

4.2 GROUND TRANSPORT CONFIGURATION

In the **ground transport** configuration, the trailer-to-tower structure, all tie-down points, primary/ancillary equipment and their attachments to the trailer shall withstand the specified G-load factors utilizing AISC standards as a guideline with the following Transport Acceleration Loadings:

Vertical Down:	2.0 G's
Vertical Up:	1.5 G's
Aft/Longitude:	1.5 G's
Secured Accessories:	Above plus potential 4.5G Download (Primary Components)

5. DESIGN AND CONSTRUCTION STANDARDS

The above described portable tower systems (**tower and trailer**) shall be manufactured using all applicable US Military handbooks, Federal, ANSI, EIA-TIA, UBC, NHTSA and other standards as guidelines. Tower components and sections are fabricated, welded and galvanized in compliance with the requirements of ISO9001:008.

5.1 MATERIALS, PROCESS AND PARTS:

All Material used in the construction of our trailers and towers shall be of good commercial quality; processes used in all construction shall conform to best commercial practices.

5.2 ENVIRONMENTAL STANDARDS:

The proposed model configuration and associated accessories shall be capable of operating in the specified environment; the equipment shall survive normal and customary operating and storage conditions without excessive degradation.

The proposed model configuration and associated accessories shall be resistant to the following: Temperature/humidity, altitude; sand/dust; moderate ice accumulation; salt/fog; fungus/insects; rain, sun and excessive corrosion

5.3 SIGNS, LABELING AND MARKINGS:

Nameplates and product markings shall be in accordance with best commercial practice; labels shall be of a UV resistant vinyl finish.

5.4 SAFETY:

Equipment and design is engineered to incorporate safety features wherever appropriate which shall reduce the likelihood of hazards to operating personnel. The objective is to minimize the possibility of personal injury during installation operation and maintenance.

5.5 WORKMANSHIP:

Workmanship shall be in accordance with good commercial practice; special attention shall always be given to neatness and thoroughness of items such as soldering, markings of parts and assemblies, wiring, welding, brazing, plating, riveting, finishes, machine operations and screw assemblies as applicable to construction. All best efforts shall be used to reduce or eliminate all burrs, sharp edges or any other manufacturing defect that could make the part or equipment unsafe to the operating personnel.

5.6 HUMAN PERFORMANCE/ENGINEERING:

Equipment shall be designed and engineered to enhance the operator's ability to perform his role in the operation and maintenance of the equipment; all controls for normal operation shall be readily accessible and functionally grouped, insofar as practical, to improve operator efficiency.

5.7 QUALITY ASSURANCE:

Multi-part verification shall be used for compliance process for all its manufactured products; compliance verification includes inspection analysis, demonstration and qualification.

6. ENVIRONMENTAL CONDITION GUIDELINES

The WCT MTS uses electric motors for both tilt and lift functions. This avoids any potential operational problems due to heat or cold, and any environmental issues due to leaking hydraulic fluids.

Given the environmental characteristics in which the equipment may be deployed, the **tower and trailer** are manufactured for survival/storage without excessive degradation (renders the equipment inoperable) utilizing the following environmental parameters as guidelines:

6.1 TEMPERATURE/HUMIDITY:

Operational: to -23° C (ambient); to -35° C temperature may be achieved to +55° C. 98% humidity @ 40° (intermittent duty) to +25° C (continuous duty)

Storage to -35° C to + 60° C / Humidity @20% to 60%

Solar Radiation of 1100 watts/meter2

6.2 ALTITUDE:

Operational mode to 3,500 meters; non-operational and storage to 12,000 meters

6.3 SAND/DUST:

Operational in desert environment ~ meet 0.95g/m3 with wind speeds up to 40 km/hr. at a height of 3m. Particle size from 74 micrometers, with the average size ranging from 4 to 350

6.4 SALT SPRAY/FOG:

Storage, exposure and operation during or after exposure to salt atmosphere requires prescribed regular maintenance

6.5 FUNGUS/INSECTS

Storage and exposure to insect/fungus conditions ~ utilization of non-nutrient materials where practical

6.6 RAIN

Precluded from leakage to sensitive parts, exposure to rain rates of 5cm/hr. with wind levels of 80km/hr.

6.7 SUN

Exposed surfaces and materials protected against excessive corrosion. All surfaces to be painted and/or chemically treated for corrosion resistance. Avoidance of galvanic corrosion due to contact of dissimilar metals. All galvanized steel members hot dipped per ASTM-A-123 at time of fabrication require prescribed regular maintenance.

WORLD COMMUNICATION TOWERS

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