

**ADVANCED CONTAINMENT SYSTEMS, INC**

**GENERAL SPECIFICATIONS**

**28' x 8' Mass Casualty Decontamination Trailer**

**# MCDTS288**

**1. GENERAL INFORMATION**

- 1.1. Fresh hot water requirements – approximately 28 gpm or 1680 gph
- 1.2. Fresh water inlet requirements one (1), 1-1/2” fire hose
- 1.3. On board concentrated decon solution – 5 gallon bucket.
- 1.4. Total BTUH requirement for water heater (boiler) –1,014,000 BTUH
- 1.5. Diesel capacity on board – 50 gallons
- 1.6. Available operating time for on board diesel system – in excess of 3.5 hours with water heaters operating at full capacity

**2. DIMENSIONS**

- |     |                           |          |
|-----|---------------------------|----------|
| 2.1 | Length of decon/work area | 24' – 0" |
| 2.2 | Width of body             | 8' – 0"  |
| 2.3 | Front Utility             | 4' X 8'  |
| 2.4 | Length of body hull       | 28' – 0" |
| 2.5 | Overall length            | 35' – 0" |
| 2.6 | Overall height            | 11' – 6" |
| 2.7 | Ceiling height            | 7' – 0"  |

**3. CHASSIS**

- 3.1. Main beams – 12W 16 Wide Flange Beam

- 3.2. Crossmembers – 6” x 8.2# structural steel channel
- 3.3. Floor joists – 2 x 2 x 16 ga galvanized steel tubing 16” o.c.
- 3.4. Side rails 4 x 2 x 12 ga galvanized steel angle
- 3.5. Three (3) 7,000# capacity high speed axles with electric brakes.
- 3.6. Tires – Seven (7) LT235-85R-16 ‘G’ range mounted on 16” silver mod steel wheels;
  - 3.6.1 Spare tire on rim shall be included.
- 3.7. Tongue Jack - 10,000# capacity, two speed, drop leg type
  - 3.7.1 Conspicuity tape shall be applied to both sides of the tongue.
- 3.8. Stabilizer jacks. – swivel type
  - 3.8.1 Four (4) 7,000# capacity.
  - 3.8.2 One mounted to each corner.
  - 3.8.3 Bubble levels mounted to each corner area.
- 3.9. Rear bumper.
  - 3.9.1 Heavy duty steel step type.
  - 3.9.2 1’ – 0” deep x 8’ long
- 3.10 Hitch- 3” Lunette eye, 5’ ‘A’ frame
- 3.11 Rear steps.
  - 3.11.1 One (1) set at each rear door.
  - 3.11.2 Heavy-duty, fabricated from 12 gauge steel, fold down type
  - 3.11.3 2 step assembly.
  - 3.11.4 Includes an aluminum handrail.
  - 3.11.5 All step surfaces coated with non-slip safety grip paint.

### 3.12 Side door steps.

3.12.1 Heavy duty fabricated 12ga. steel-telescopic.

3.12.2 Fold-out.

3.12.3 3-step assembly attached to main beam.

3.12.4 Each stair tread is 36”L x 9”D.

3.12.5 All step surfaces coated with non-slip safety grip paint.

3.12.6 Includes fabricated fold out aluminum hand rails with three point attachment.

## **4. BODY STRUCTURE**

4.1 Floor system designed to eliminate wheel boxes

4.2 All steel floor box construction

4.3 2 x 4 wood wall studs (16” o.c.)

4.4 2 x 6 wood roof rafters (16” o.c.)

4.5 ¾” CDX plywood flooring.

4.6 Seal skin rubber floor coating covered 1 ½” up the walls to provide a non-slip, very durable, seamless, chemical resistant, water proof floor.

4.6.1 Color: Gray.

4.7 Exterior siding.

4.7.1 Aluminum, smooth .040 **white baked enamel finish.**

4.7.2 Aluminum sheets to be 49” wide for a 1” overlap.

4.7.3 Attached to studs with aluminum fasteners and each sheet is sealed with a VHB double sided tape.

4.8 Seamless Fiberglass Reinforced Plastic (FRP) .060” thick.

- 4.8.1 Laminated to 3/8" plywood on interior walls and ceiling with corner joints vinyl trimmed and sealed with a high quality silicone sealant to provide a water proof, air tight interior.
- 4.9 Roof, .040 thick seamless aluminum roof fastened to the perimeter aluminum top rail.
  - 4.9.1 All fasteners are located outside the trailer body.
- 4.10 To include a double sound attenuation wall between the equipment compartment and the front transversal storage compartment.
- 4.11 Heavy duty extruded aluminum top rail installed around perimeter of roof.
- 4.12 R11 fiberglass insulation installed in all walls, floor and ceiling.
- 4.13 Belly pan, 20 ga galvanized steel covering bottom side of trailer.
- 4.14 Three (3), heavy duty, aluminum framed entry / exit doors.
  - 4.14.1 Two (2) rear, one (1) curb side.
  - 4.14.2 30" wide x 78" high with fabricated galvanized steel panel inner cores, aluminum exterior skins, FRP interior skins, continuous hinges, full perimeter neoprene bulb seal and stainless steel door handles with dead bolts keyed alike with interior thumb latches.
  - 4.14.3 Hydraulic hold open door closers to restrain doors and to close automatically to aid in the negative pressure process.
  - 4.14.4 Custom built low profile aluminum drip rail installed over each door.
  - 4.14.5 The two rear doors will be labeled as follows: 4" letters: left door and right door will read "ENTRANCE".
  - 4.14.6 The exit door will be on the curbside, will be labeled "EXIT" in 4" letters.
- 4.15 A double sound attenuation wall is installed between the generator compartment and the decon area.
- 4.16 A 4' x 8' utility compartment located at the front of the trailer with two (2) doors.

- 4.16.1 Doors shall be 30”wide x 74” high, with fabricated galvanized steel inner cores, aluminum exterior skins, galvanized interior skins, continuous hinges full perimeter neoprene bulb seal and stainless steel door handles with dead bolts, keyed alike with interior thumb latches.
- 4.16.2 Custom built low profile aluminum drip rails installed over each door.
- 4.16.3 One (1) door located on street side forward for access to generator.
  - 4.16.3.1 Open aluminum grading shall be installed, in the right back corner, for access to generator.
- 4.16.4 One (1) door located on front wall curb side for access to water management system.
  - 4.16.4.1 One (1) steel stirrup, along with a hand grip, shall be installed under the door for access to the water management area.
- 4.16.5 Intake vents shall be installed in the lower portion of the doors for air circulation in the utility room.
  - 4.16.5.1 Removable aluminum shields shall slide into tracks, to prevent road dirt from entering.

## **5. BODY INTERIOR – DECON COMPARTMENTS**

- 5.1 Trailer includes two (2) longitudinal decon compartments.
  - 5.1.1 Separated by a full length heavy duty divider curtain consisting of a vinyl material that will extend the full length of the decon area.
  - 5.1.2 The curtain will be suspended from the ceiling with a heavy duty aluminum track and secured to the end walls with cinch straps.
    - 5.1.2.1 The wall shall be on a bar, so if needed the interior can be opened up for a “rehab” unit.
  - 5.1.3 The side curtains will be secured to the walls with footman loops and cinch straps.
- 5.2 The rear of the unit consists of two contaminated (dirty) areas which includes:
  - 5.2.1 Stainless steel clothes chutes.

- 5.2.2 Two (2) flow through brushes for performing gross decon, with a 6' stainless steel metal flex hose with stainless steel quick disconnect (QD) fittings are included for this area
- 5.2.3 Two (2) hand held shower wand for rinsing, with 6' stainless steel metal flex hoses with stainless steel QD's are also included.
- 5.2.4 QD fittings to be interchangeable with QD fittings on the exterior QD outlets.
- 5.2.5 Ball valves are included to isolate control of the water in the gross decon areas and the shower areas., (1-fresh and 1 – solution)/
- 5.2.6 Privacy curtain inside entrance door.
  - 5.2.6.1 A 2" epoxy coated dam will separate the gray water into two (2) respective decon areas.
- 5.3 The area ahead of the dirty area is the decon solution application area.
  - 5.3.1 It shall consist of a vertical manifold that has 3 shower nozzles @ 1 GPM each.
  - 5.3.2 One (1) shower head nozzle @1GPM in the center of the ceiling spraying straight down.
  - 5.3.3 Privacy curtain and a stainless steel trough drain.
  - 5.3.4 A 2" epoxy coated dam will separate the gray water into two (2) respective decon ares.
    - 5.3.4.1 One (1) 36" vertical stainless handrail in each side.
- 5.4 The area ahead of the decon solution application area is the rinse area.
  - 5.4.1 It shall consist of a vertical manifold that has 3 shower nozzles @ 1 GPM each.
  - 5.4.2 Will have 1 shower head nozzle @ 1 GPM in center of ceiling spraying straight down.
  - 5.4.3 Privacy curtain and a stainless steel trough drain.
  - 5.4.4 A 2" epoxy coated dam will separate the gray water into two (2) respective decon ares.

- 5.4.4.1 One (1) 36" vertical stainless handrail in each side.
- 5.5 The fourth area which is in front of the rinse area is the clean area, for drying off and dressing into clean clothing before leaving the site.
  - 5.5.1 A 24" long fold down aluminum bench will be provided in each clean area.
  - 5.5.2 This exit vestibule and is used to evaluate personnel making sure that they were fully decontaminated.
  - 5.5.3 Two (2) storage areas, approximately 42" W x 72" high x 12" D., with four (4) adjustable shelves, are installed, one (1) in each clean room
    - 5.5.3.1 Shelves are used for storage of towels and suits.
    - 5.5.3.1 Cargo nets cover the fronts to retain stored items in place.
  - 5.5.5 A 2" epoxy coated dam will separate the two (2) compartments.

## **6. 120 / 240 AC ELECTRICAL SYSTEM**

- 6.1 One (1) Generator, 12 KW, 60 HZ, 240-120V equipped with diesel fuel system, remote control (located in the clean room with fuel gauge, hour meter, water temp gauge, oil pressure gauge).
- 6.2 All AC electric functions are controlled by one (1), 100 amp load center with properly sized breakers, located in the interior.
- 6.3 One (1) 125 amp manual transfer switch, NEMA 3R, transfer power from the generator or shore line power to AC load center.
- 6.4 One (1) shore line power cord, 25' long will be attached to transfer switch for hook up to outside electrical supply.
  - 6.3.1 Power cord shipped with no plug
- 6.5 Eight (8) wet location type, 2 bulb, 2', 40 watt fluorescent light fixtures are included. (1 in each dirty area, solution area, rinse area, and vestibules)
- 6.6 Five (5) GFI protected grounded duplex type wall receptacles installed as follows:
  - 6.6.1 Two (2) interior, in the vestibule.

- 6.6.2 Two (2) exterior, at the front of the trailer, one each side.
- 6.6.3 One (1) in the equipment room.
- 6.6.4 All outlets shall have weather proof covers.
- 6.6.5 All outlets wired to the circuit breaker panel.
- 6.7 All wiring to be installed in strict accordance with NEC.
- 6.8 Three (3), emergency single exit lights, wired to the generator batteries, with a timer.
- 6.9 One (1) 60 watt porch light, installed by exit door.
  - 6.9.1 Switch controlled from control panel.

## **7. ELECTRICAL – OTHER**

- 7.1 12v DC Electrical
  - 7.1.1 7 pole (Bargman) Trailer wiring circuit
  - 7.1.2 Combination stop, tail, and rear directional LED lights installed at the rear of the trailer.
  - 7.1.3 Clearance, marker, and ID LED lights installed in roof rail.
  - 7.1.4 License plate bracket on the rear with light.
  - 7.1.5 All wiring to be of proper size for amperage rating of lights. All wiring to be automotive stranded copper.
  - 7.1.6 Main electrical cable to be 7-conductor trailer wire
  - 7.1.7 All lighting to be in compliance with FMVSS lighting standards.
- 7.2 Whelen Emergency lighting package.
  - 7.2.1 One (1) #WLN6EOC2OAU RED LED head surface mounted light with #WLNCAST1L polished cast aluminum housing.
    - 7.2.1.1 Light mounted high curbside rear above door as close to outside as possible.



- 7.2.2 One (1) #WLN6EOC2OAU RED LED head surface mounted light, with #WLNCAST1L polished aluminum housing.
  - 7.2.2.1 Light mounted high street side above rear door, as close to outside as possible.
- 7.3 Two (2) deep cycle batteries rated at a minimum of 225 minutes at 25 amps. are installed for the DC electrical system.
  - 7.3.1 Model Trojan SCS225.
  - 7.3.2 A battery charger shall be supplied to provide the DC power needed to run the system.
  - 7.3.3 Both on-board batteries need to be terminated at a distribution block and all loads connected to this block. All terminals labeled.
  - 7.3.4 External power connection for battery charger, to allow charger to be connected to power when trailer is not connected to shore power or generator is not operating.
  - 7.3.5 Power connection to be located externally on front of the trailer.
  - 7.3.6 A 20 V, 15 amp male power inlet receptacle is installed with a weatherproof cover, at the front of the trailer.
  - 7.3.7 Current limiting relays prevent back flow from inlet receptacle to any other electrical connections.
- 7.4 Whelen Scene Light Package consisting of five (5) #810CAOZR clear lens 8-32 degree halogen scene lights, surface mounted.
  - 7.4.1 Two (2) on each side of trailer below awnings line and positioned for lighting spray booms.
  - 7.4.2 One (1) mounted in rear of trailer in between entrance doors.
  - 7.4.3 Lights are powered by deep cycle batteries and controlled by three (3) switches located on the control panel.
  - 7.4.4 All other low voltage switches located within interior of trailer to also be rocker type.
- 7.5 Control Panel
  - 7.5.1 Enclosure shall be mounted in the front shelf, at eye level.

- 7.5.2 Enclosure shall have NEMA rating of 3, 3R, 4, 4X, 12 & 13
- 7.5.3 Enclosure is designed to meet the Joint Industrial Council (JIC) standards in the United States.
- 7.5.4 Enclosure made from corrosion resistant hot compression molded fiberglass reinforced polyester.
  - 7.5.4.1 The enclosure includes four (4) stainless steel captive screws that secure the cover to the base by means of four (4) threaded brass inserts contained in the base.
  - 7.5.4.2 Size of box, OD dimensions, 15.3” x 13.3” x 6.7”
  - 7.5.4.3 Mounting plate shall be non-metallic
- 7.5.5 Mounted on the face plate shall be:
  - 7.5.6 Generator switch remote start,
  - 7.5.7 Generator hour meter,
  - 7.5.8 Generator fuel gauge,
  - 7.5.9 Generator temperature gauge,
  - 7.5.10 Generator oil pressure gauge,
  - 7.5.11 Battery charging monitor
  - 7.5.12 Grey water tank level monitor
  - 7.5.13 Nine (9) 125 V illuminated round rocker switches
  - 7.5.14 Three (3) 12V illuminated round rocker switches
  - 7.5.15 All switches function labeled.

## 8.0 **GENERATOR**

- 8.1 One (1) Generator, 12KW, 60 HZ, 240-120V equipped with diesel fuel system, remote control ( located on front wall of command center and 10 amp battery charger kit.
- 8.2 Aluminum louvers will be installed to provide adequate ventilation to the generator and boiler.

8.3 Fuel supply to generator is provided by a 50 gallon diesel tank located between the frame rails for protection. All diesel powered equipment will run off this tank.

8.3.1 Fill shall be at the front of the trailer.

8.3.2 A retaining chain shall be included.

## **9. PLUMBING**

9.1 Two (2) diesel fired tankless boiler units to supply hot water, continuous water flow, 675,968 BTU's shall be installed in the equipment room next to the generator in same enclosure.

9.1.1 One (1) electronic water temperature controller, on each boiler, with digital temperature read out will be installed to provide constant 80 to 85 degree tempered water throughout the unit.

9.1.2 A desired temperature will be programmed in and all rinse and decon solution shower ports will provide the desired tempered water.

9.1.3 A pressure regulator is included to regulate the water coming in from a pumper truck.

9.1.4 Additional manual drains shall be installed at the bottom of the boilers.

9.2 Gray water tank located under the trailer, 200 gallon polyethylene tank with a 1 1/2" discharge ball valve includes a cam fitting..

9.2.1 Water is to be discharged through a supplied 1 1/2" hose x 20'.

9.2.2 There will be a discharge pump to enhance the flow of water into the holding tank.

9.2.3 Float and control switch allows pump to be operated manual or automatic.

9.2.4 A manual drain shall be installed with a cap.

9.3 City water inlet with pressure regulator installed at front of unit on street side.

9.3.1 Inlet fitting to be 1 1/2" NPT female inlet fitting fire hose connection.

- 9.4 System shall be provided for concentrated decon solutions with desired percentage of dilution to be metered into shower system.
  - 9.4.1 Concentrate is pumped out of 5 gallon buckets, an adjustable metering distribution system to inject into the solution distribution heads.
  - 9.4.2 Decon solution metering pump will be located in the utility room on the curb side of the trailer.
  - 9.4.3 System should be driven by water volume not water pressure.
  - 9.4.4 System will be non-electric.
  - 9.4.5 There shall be room to store an additional two (2) 5 gallons of solution.
- 9.5 Plumbing supply lines are high density, cross linked polyethylene tubing with brass swaged lock fittings.
  - 9.5.1 All drain lines are SCH. 40 PVC pipe.
- 9.6 All exterior plumbing and holding tank will be heat traced and insulated
- 9.7 Two (2) quick disconnect (QD) fittings located on street side rear.
  - 9.7.1 Each QD is controlled by a ball valve.
  - 9.7.2 One (1) fresh water and one (1) solution connection for external decon functions.
  - 9.7.3 QD's are for utilization of hand held showers.
  - 9.7.4 Holding clips located on rear of trailer to hold brushes and wands when connected to trailer but not being hand held in service.
  - 9.7.5 One (1) QD discharge will be plumbed to distribute decon solution.
- 9.8 One (1) blow down adapter to fit 1½" inlet fitting and adapted for Schrader air Chuck.
  - 9.8.1 Adapter is used when air is applied to blow down all water lines.
- 9.9 One (1) On-board pump shall be installed in the utility compartment, to introduce propylene glycol for winterizing the entire trailer.

9.9.1 Pump shall be powered by the on-board batteries.

9.9.2 It shall have a 6' suction hose and a 6' discharge hose with fire hose adapter to hook up to the main supply connection.

## **10. HVAC SYSTEM**

10.1 Two (2), roof mounted A/C units with heat strips are included, both units mounted in clean room and ducted into shower area (13,500 BTU's of cooling, 5600 BTU's of heat, each unit).

10.2 One (1), all aluminum HEPA filtered 700 CFM negative pressure air unit, will be mounted on the rear wall.

10.2.1 Filter change from the inside the trailer

10.2.2. Air Filtration is through a carbon filter.

10.2.3 Air Discharge is through rear wall of trailer.

## **11. PLUMBING FOR EXTERIOR BOOMS**

11.1 An exterior decon station will be installed on the curbside of the trailer.

11.2 Each decon station will consist of two (2) stainless steel shower booms that swing out from the trailer to distribute decon solution and rinse water.

11.3 Each boom is equipped with three (3) nozzles attached with QD fittings for easy interchangeability with other decon accessories.

11.4 The rear booms will be plumbed to distribute decon solution.

11.5 The front booms will be plumbed to distribute rinse water.

11.6 An adjustable metering system for concentrated decon solution with desired percentage of dilution supplying the interior decon stations will also meter solution into the solution booms.

11.7 Control valves will be mounted on the each side of the trailer to operate each boom. Valves will be located near each boom.

11.8 Water supply to exterior booms is provided by diesel fired tankless boiler units described in section 9. Constant water temperature is maintained by same electronic controller that controls interior water delivery.

## **12. AWNING:**

- 12.1 One (1) 8' x 20' awning will be installed on the curb side of the trailer.
- 12.2 One (1) 8' x 20' awning will be installed on the street side of the trailer.
  - 12.2.1 Awnings will be white in color.
  - 12.2.2 One (1) containment berm will be provided, approximately 8' x 18'
- 12.3 Privacy curtains will be installed on 3 sides of the awning.
- 12.4 Curtain assembly to be constructed in 3 pieces( 1pc full length side curtain, 1pc full width each end curtain.
- 12.5 Each piece of curtain assembly independently secured to pole frame so that end curtains can be removed while side curtain remains erected.
- 12.6 Velcro flaps on end curtains will cover onto side curtain to maximize privacy. Velcro straps to retain flaps in open position. Curtains are to be constructed of 20 lb. vinyl material.

## **13 MISCELLANEOUS**

- 13.1 Labeling: All control switches, faucets, valves, function indicators, etc. to be labeled with engraved vinyl self-adhesive signage. All load center breaker functions to be labeled for easy identification.
- 13.2 An operators manual will be included.
- 13.3 Conspicuity tape around the lower portion of the trailer.