MUTUAL AID BOX ALARM SYSTEM

Technical Specifications

MABAS Mobile Vehicle Mounted
Personnel Decontamination Unit
Technical Specifications
Modec, Inc., Denver, Colorado USA

1.0 Chassis

Commercially available, American brand trucks with rust resistant materials and components, and aftermarket rust protection coat(s) applied to the chassis and decontamination box under carriage & its components.

1.1 Provide seating and in-cab storage for at least two (2) individuals.
1.2 Meet and exceed all regulatory (state and national) standards, including safety.
1.3 Tow eyes/hooks shall be frame-mounted and installed front and rear.

1.0 Modec's Chassis: American made International® Truck Model Year 2006 SBA 4300 4 x 2 MA025 Chassis. Overall GVWR of 26,000 lbs. and complete with underbody rust protection.

1.1 Seating: Seating and storage for two people including driver swivel seat and three-point seat belts.

1.2 DOT: Meets federal and state DOT regulations including emissions for 2004

1.3 Tow eyes: Eyes and hooks are frame-mounted front and rear.

2.0 Power-Train and Chassis

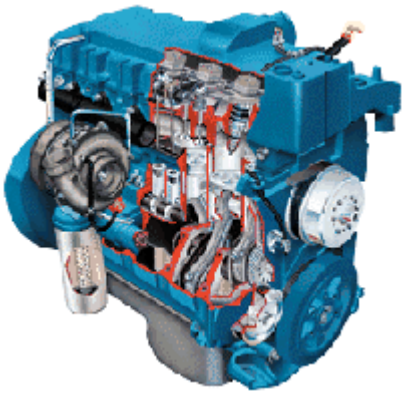
2.1 Diesel engine and automatic transmission of adequate size and power to meet expectations for a safe and legal over-the-road emergency response.

2.2 Axles and tires must be engineered appropriately with remainder of the drive-train and fully loaded GVW to adequately and safely meet performance expectations of an emergency response unit. Each unit's design GVW shall include the vehicle plus an additional 2,000-lb. carrying capacity.

2.3 Overall vehicle length must be of such design to allow adequate and safe turning radius on city and suburban streets.

2.4 A spare tire and jack system shall be provided with each unit and mounted in an easily accessible location.

2.1 Diesel Engine: The vehicle features a DT466 International Diesel Engine with 220 Horsepower, 540-lb-ft torque @ 1,400 rpm, 2,600 rpm governed speed, No.2 Bell Housing. Allison Transmission 2100-HS, Close Ratio, 5-Speed, With Overdrive



2.2 Front Axle: International I-100SG, I-Beam Type, 10,000-lb Capacity, Parabolic Front Spring, Taper Leaf 10,000-lb Capacity; With Shock Absorbers

Rear Axle: Dana Spicer 17060S Single Reduction, 17,500-lb Capacity, With 190 Wheel Ends, Gear Ratio: 5.29. FRONT TIRES: (2) 265/75R22.5 Unisteel G159 (Goodyear) 537 rev/mile, load range G, 14 ply, TIRE, REAR: (4) 265/75R22.5 Unisteel G124 M+S (Goodyear) 537 rev/mile, load range G, 14 ply.

Rear Suspension: Air, Single: International Ride Optimized Suspension (IROS); 21,000-lb Capacity, 9.25" Ride Height, With Shock Absorbers.

Frame Rails: High Strength Low Alloy Steel (80,000 PSI Yield); 10.250" x 3.092" x 0.375".

CALCULATED WEIGHT CAPACITY AND DISTRIBUTION (RATED IN LBS):

Vehicle Front: 6,450; Rear: 3,650, Van Body: 3,900, Installed Components: 6,500 lbs. Total Vehicle Est. weight = 20,500, excess capacity = 3,450 (17,500 Rear Axle rating - 14,050 rear).

2.3 Overall Vehicle Length: Wheelbase of 254" (Cab to axle distance) insures safe handling and turning radius. Class 6 vehicle is comfortable vehicle for most people to handle.

2.4 Spare: Spare and jack will be provided.

3.0 Steering and Brakes

3.1 Power steering shall be provided.

3.2 Brakes are preferred with associated components for under-station removal from system for repair & maintenance.

3.1 Power Steering: Tilt Steering column, 2-spoke, 18" diameter black steering wheel. Sheppard M-100 power steering.

3.2 Brake System: Dual air system for straight truck applications includes the following: air compressor air supply line engine naturally-aspirated, brake chambers, rear parking, brake lines color coded nylon, slack adjusters, rear automatic parking brake valve color-coded yellow knob, located on instrument panel, drain valve twist-type spring brake modulator valve, gauge, air pressure located in instrument cluster air 1 and air 2, Gauges: air brake ABS Bendix antilock brake system, full vehicle wheel control system (4-channel), Bendix AD-9 air dryer with heater; brakes, front, air cam s-cam; 15.0" x 4.0"; includes 20 sq. in. mgm long stroke brake chambers, brakes, rear, air cam 16.5" x 7.0"; includes long stroke brake chamber and heavy duty spring actuated parking brake.

4.0 HVAC System

4.1 The vehicle cab shall include heating and air conditioning systems.

4.2 The personnel decontamination box mounted on the chassis may or may not be integrated with the cab HVAC systems or electrical system, however, should such design be selected all systems must deliver full capability without reducing environmental benefits to either. Shared systems for HVAC must also have a surplus capacity of at least fifteen percent (15%) when shared systems are in dual operation and at maximum settings.

4.1 Vehicle Air Conditioner and Heater: International Blend-Air With Integral Heater and defroster.

4.2 Decon Area HVAC: American Cooling Technologies Model CS-2 PTO Driven System rated at 30,000 BTU's.

5.0 Interior Cab Finish and Design

5.1 Dark colors as to not show soiling.

5.2 Floor and door coverings shall not be carpeted, but rather a dark color which is impervious to chemicals and easily cleaned.

5.3 Space will need to be available for easy access and mounting of radio communications equipment, siren, and warning light/decontamination unit control panels.

5.4 Bucket seats are preferred with driver/passenger adjustable features. Seats shall not be finished in fabric, but rather an impervious and cleanable vinyl.

5.1 - 5.4: Cab Interior: The interior will be grey, and vinyl will be used that is easy to clean and impervious to chemicals. Ample space is provided along with the addition of the Command and Communications area that is proposed in the Modec unit. (Proposed unit is automatic transmission, standard shown in picture)

6.0 Cab Exterior

6.1 Color will be determined at award of bid – probably red with emron-type paint equal.

6.2 Exterior mirrors shall be adequate for safe vehicle operation.

6.3 Cab exterior must be capable of accepting mounted grill, roof, bumper, fender warning lights, sirens, air horns, mobile radio antennas and the like. Easy access and cable/attenae installation must be provided for standard UHF/VHF mobile radios.

6.4 Scotchlite strips, lettering and logos (logo provided by customer) will also be installed by successful vendor to cab and personnel decontamination box as negotiated with customer.

6.1 Color: Vehicle and apparatus will be painted Standard International Fire Engine Red.

6.2 Mirrors: 2 x Lang Mekra Styled Rectangular, 7.09" x 15.75", Brackets breakaway type with Integral Convex Both Sides, with all heated heads, thermostatically controlled, with clearance lights LED, powered both sides, bright heads and brackets.

6.3 Cab Exterior: Will be capable of accepting multiple installations of various equipment.

6.4 Decals: Modec will install all stripes and logos using camera ready art on high quality vinyl rated for a minimum of ten years

7.0 Electrical System and Emergency Warning Systems

7.1 Electrical system of the cab, chassis and rear box as applicable shall be 12 Volt DC.

7.2 Connections between the box and cab/chassis shall be of a quick connect-disconnect nature.

7.3 Alternator, battery and other components shall be heavy duty design and have a surplus capacity to more than adequately provide power to the vehicle, its components, warning light/siren system and accessories.

7.4 Wiring harnesses shall be color-coded, easily accessible and have as-built schematics provided.

7.5 Circuit breaker fuses and trip switches shall be easily accessible in a centralized location.

7.6A Emergency warning lights shall provide three hundred sixty degrees (360°) visibility. Roof warning light shall also be included. NFPA 1901 is the applicable standard to provide guidance on emergency warning light & siren issues.

7.6B Vendors/manufacturers are allowed to propose an alternative emergency warning light vehicle warning light system which is entirely LED design. This alternative proposal is not mandatory and will be considered as an alternative proposal by the customer.

7.7 The emergency warning siren shall be electronic versus mechanical in design.

7.8 The emergency warning lights and siren shall be configured to a single operation control box mounted in the vehicle's cab.

7.9 Normal operating, driving, and braking lights shall meet all statutory requirements. An electric backup alarm shall be provided and installed for three hundred sixty degree (360°) warnings when the vehicle is put in reverse.

7.10 Group 31 batteries required.

7.1 Electrical System 12-volt standard, with SAE Blade type fuses.

7.2 Connections: Connections between cab and chassis (as applicable) will be quick disconnecting type.

7.3 Alternator: Leece-Neville A0014951PA Brush type, 12-v, 200 Amp Capacity, self excite and pad mounted. Starting Motor: Leece-Neville M100R, 12-Volt, 8MEZ Battery (Group 31) International Maintenance-Free, (2) 12-Volt.

7.4 Wiring Pack at Left Frame: Includes Sealed Connectors for Tail/Amber Turn/Marker/ Backup/Accessory Power/Ground and Sealed Connector for Stop/Turn. Chassis Wiring is Color Coded and Continuously Numbered.

7.5 Circuit Breakers: Manual Reset SAE Type III with trip indicators.

7.6 A& B Emergency Light System: Modec will be installing as standard equipment, Federal Signal LED lights throughout. The lighting system and power packs, are NFPA 1901 compliant and will consist of the following:

- 2 x MOD1F
- 4 x MOD2X
- 6 x MOD2F
- 4 x MOD3X
- 2 x Flashers (650205)
- 1 x Lightbar JLX6001
- 13 x GHSCENE Perimeter Lighting
- 2 x GL2R – Hood Mount

7.7 Siren: Federal Touchmaster Delta Siren with MS100 Speaker.

7.8 Controls: Emergency light controls mounted in cab.

7.9 Statutory Requirements: All lighting meets DOT requirements; a reverse alarm will be installed.

7.10 Batteries: Batteries supplied are Group 31 rated.

8.0 Vehicle Overall Height, Width, and Length

8.1 The vehicle, including warning lights shall not exceed eleven feet five inches (11'5") in height.
8.2 The overall vehicle width shall not exceed eight feet and six inches.
8.3 The overall length of the vehicle shall not exceed four hundred ninety-four inches (494") bumper to bumper.

8.1 Height: The vehicle will be approximately 11'3" in total height.

8.2 Width: The vehicle width will be 102" wide (8'6").

8.3 Length: The overall length will be approximately 408" (34').

OTHER VEHICLE SPECIFICATIONS:

- **Exhaust System:** Single, Horizontal, Stainless Steel Muffler, With Internal Catalytic Converter, Tall Pipe, Frame Mounted Right Side, for 2004 Emissions Standard with International I6 Engines.
- **Turn Signal Switch:** Self-Canceling, Headlight Dimmer with Flash-To-Pass Feature
- **Horn:** Electric, Single
- **Parking Light:** Integral with Front Turn Signal and Rear Tail Light, Stop, Turn, Tail & B/U Lights Dual, Rear, Combination with Reflector
- **Starter Switch:** Electric Key Operated
- **Data Link Connector:** In Cab For Vehicle Programming and Diagnostics
- **Windshield Wipers:** Single Motor, Electric, Cowl Mounted, 2-Speed Integral with Turn Signal Switch with Wash and Intermittent Feature.
- **Radio: Accommodation Package:** AM/FM, With Wiring and Antenna, Includes Multiple Dual-Cone Speakers; Includes : SPEAKERS IN CAB (4) Coaxial with Premium Interior, HORN, AIR: Grover Black, Single Trumpet, Air Solenoid Operated, Mounted Behind Bumper on Right Rail
- **Headlights:** Halogen; Composite Aero Design and Daytime Running Lights
- **Fog Lights:** (2) Clear, Oval, With Halogen Bulb
- **Fuel Tanks:** (2) Top Draw; D Style, Non Polished Aluminum, 50 U.S., Gal., Total Capacity 100 U.S. Gal., 378 L; 16" Tank Depth, Mounted, Under Cab Left and Right Side
- **Fuel Lines:** Nylon Tubing With O-Ring Snap-On Quick-Connect Fittings at Both Ends
- **Clearance/marker lights:** (5) Flush Mounted
- **Arm rests:** (2) Molded Plastic, Smoke Gray; One Each Door
- **Floor Covering:** Rubber, Black
- **Grab Handles:** CAB INTERIOR (1) "A" Pillar Mounted, Passenger Side
- **Steps:** (2) Two Steps Per Door
- **Glass:** Tinted
- **Gauge Cluster:** English With English Electronic Speedometer
- **Odometer Display:** Miles, Trip Miles, Engine Hours, Trip Hours, Fault Code Readout
- **Warning System:** Low Fuel, Low Oil Pressure, High Engine Coolant, Temp, and Low Battery Voltage (Visual and Audible), Engine Oil Pressure (Electronic), Water, Temperature (Electronic), Fuel (Electronic), Tachometer, (Electronic), Voltmeter

OTHER VEHICLE SPECIFICATIONS (Continued):

- **Driver Seat:** National 2000, Air Suspension, High Back With Integral Headrest, Vinyl, Isolated, With 2 Position Front Cushion Adjustment, -3 to +14 Degree Seat Back Adjustment, Single Chamber Air Lumbar Support, with swivel to pass-through.
- **Power Windows:** (2) with Power Locks, Left and Right Doors
- **Sound Insulation:** Dash and Engine Cover Insulators
- **Overhead Console:** Molded Plastic with Dual Storage Pockets, Retainer Nets, Pockets CB Radio Pocket with Hold-Down, Compass/Temp Display, Auxiliary Visor, Reading Lights; Smoke Gray with Black : "A" Pillar Cover Molded Plastic, Smoke Gray
- **Instrument Panel Trim:** Molded Plastic, Drawbridge Gray with Black Center Section, Hidden Cup Holder and Ash Tray (Pull-Out)
- **Dome Light:** Cab Rectangular, Center Mounted, Integral to Console Door Activated, Timed Theater Dimming
- **Courtesy Light:** (2) Mounted Under Instrument Panel
- **Sun Visor:** Padded Vinyl, 1 Auxiliary Visor (Front Only), Driver Side Moveable (Front-to-Side) Primary Visors, Driver Side with Vanity Mirror and Toll Ticket Strap
- **Interior Trim Panels:** Molded Plastic, Full Height
- **Exterior Sun Shade:** Aerodynamic, Painted Roof Color; Includes Clearance/Marker Lights
- **Front Wheels:** 22.5" Polished Aluminum, 10-Stud (285.75MM BC) Hub Piloted, Flanged Nut, Metric Mount, 8.25 DC Rims; With Steel Hubs
- **Wheel Seals:** Grease Lubricated, Includes Wheel Bearings
- **Rear Wheels:** Dual Disc; 22.5" Polished Aluminum, 10-Stud (285.75MM BC) Hub Piloted, Flanged Nut, Metric Mount, 8.25 DC Rims; With Steel Hubs.
- **Block Heater:** Phillips 120 Volt/1250 Watt 2/0 2; Receptacle Type; mounted drivers door
- **Fuel/Water Separator:** Mounted on Engine and fuel filter in a Single Assembly
- **Cold Starting Equipment:** Intake Manifold Electric Grid Heater
- **Fan:** Optimized Position Borg-Warner SA85 Viscous Screw On Type 3/0
- **Radiator: Aluminum:** 2-Row, Cross Flow, Over Under System, 516 SqIn Louvered, With 270 Sq. In. Charge Air Cooler, 4.25" Core, With In-Tank Transmission Cooler.

9.0 Service and Parts

9.1 Parts must be commercially available and/or available in less than one (1) week of ordering.

9.2 Service facilities must be available within the State of Illinois and in no case more than a three (3) hour drive –or-

9.3 The manufacturer/vendor can provide service personnel & parts at the units deployed, fire station location within a reasonable amount of time from request when service, maintenance, or repair is needed.

9.1 Parts: Parts are commercially available and are in most cases available in less than one week.

9.2 Service Facilities:. Modec has established a statewide warranty response program for MABAS. For complete details, see Section 10 within this proposal. Major vehicle and components are covered by statewide dealers within Illinois.

9.3 Support Plan: We guarantee a 48-hour response time to parts and service issues through our 24-hour hot line. See Section 10 for complete details.

10.0 Decontamination Box Design and Construction

Concept: The box component of the vehicle must be modular in design for easy installation and removal from the chassis.

10.1 The box is designed for personnel decontamination, flushing, cleaning of civilians, and Public Safety personnel who may have been exposed to industrial chemicals, militarized chemicals, biological agents/toxins, radiological/nuclear particles and similar agents associated with industrial processes and/or domestic terrorism.

Therefore, all interior surfaces, flooring, grab-rails, plumbing, faucets, etc. must be of materials, design, and installation impervious to the described products. Additionally, the interior surfaces exposed must be designed for easy cleaning, disinfectants and neutralizing agents.

The decontamination box must also be "tight" to contain and direct run-off as required to installed drains and directed disposal plumbing. Exterior leaks from the box cannot be allowed. Concept: The box component of the vehicle must be modular in design for easy installation and removal from the chassis.

10.0 Modec Box Concept: Modec's van body concept is modular as it is a separate component from the vehicle and can be easily removed if required.

10.1 Decontamination System: Modec will be producing its unique non-CFC urethane foam injected van body system for the box. Constructed of impervious materials, the van bodies are extremely durable and designed to prevent any runoff or leakage from the unit. The design of these units provide for an extremely lightweight configuration (3 lbs. per sq. ft) - significantly lighter AND torsionally stronger than steel post construction. The following are the specifications regarding the Modec System:

Exterior Wall Panels:
Seamless .040" exterior grade with white baked-on enamel finish, vacuum injected foamed to vertical studs. All unfinished edges are treated for moisture protection (riveted and sealed). Wall studs are vertical 1 3/4" Z-Bar aluminum, 16 gauge, placed on 24" centers.

Insulation:
1-1/2" non-CFC injected urethane foam, R-14 minimum. The void between exterior aluminum skin, the vertical studs and the interior wall material is injected with polyurethane foam at a pressure that will assure no void exists in the foam insulation and will not distend the interior or exterior wall materials. This insures extremely high torsional strength.

Extruded Rails:
Corners are sealed/bonded to an extruded aluminum corner molding. Top of wall is sealed/bonded and riveted to a top cap structure of extruded aluminum molding. Vertical studs are riveted to rub rail and top cap structure. Rear internal corner posts are 10 gauge steel 4" x 4-1/2".

Interior Wall Panel:
090" Seamless Fiberglass Reinforced Plastic Kemlite (FRP). All edges joints and seams are sealed for moisture protection. The exterior wall is bonded to interior wall surface with the 1-1/2" foam insulation injection. Interior color is white. All seams and joints are sealed with premium quality sealant and trimmed. Seamless exterior FRP that is coated with a rubberized sealant roof and seamless interior .090" FRP ceiling are bonded to roof support ribs. Doors have similar properties (aluminum exterior).

Integral Plumbing Inserts:
Internal plumbing runs are incorporated as an integral part of the roadside wall for exterior decon during the foam injected process. 1-3/4" PVC piping will be installed at every Z-bar post to allow the installation of supply line piping. This will insure that the pipes are not exposed, eliminates the need for a false wall within the system interior, and allow for the removal of the pipe if damage occurs or repair is required.

Floor and Cross Members:
1-1/8" T&G marine grade plywood (prior to epoxy) screwed to 4" steel I-beam on 12" centers. See Section 14 for stress analysis of van body performed by a Mechanical Engineer.

Ceiling and Rafters:
Steel tube structures set at 24" O.C and bonded to aluminum roof covering and interior ceiling covering. .090" FRP bonded by foam to exterior roof covering. Roof vents are installed in the power room closet areas. Vents are sealed to the roof material and are self-curbing to minimize leaking.

DETAILED VAN BODY SPECIFICATIONS:

The following is the material requirements for a Class 91 foam injected van body used in the production of Modec's Mass Casualty Decontamination System. The van body can be removed from the chassis.

Description	Part No.
Z-post 4-02551-1336 83/1 Extruded 1-1/2" Z post Die No. 933	43-05844-1336
Aluminum Corner Post Extruded Aluminum Die No. 1007	4-05777-1402
Dry Nose Assembly	5850-084
Cross members, 12 gauge, MS 4-15/16" x 101"	087-05849
12 Ga. Galvanieled 48 X 102	006-07871C-G
RH Rear LH Front Van Casting	00505779
LH Rear RH Front Van Casting	00505778
Upper Aluminum Rail (Extruded Die No. 5539)	00400092
1/8" Alum. Angle 1-1/4" x 3-1/2"	003-01824-0056
1/8" Alum. Angle 1-1/4" x 1-1/4"	003-01824
1/8" Steel Angle/ 1/8 x 1-1/2 x 2	98085
Lower Aluminum Rail (Extruded Die No. 5546)	00400104
Huck Bolt C6LB-12R-4G 3/8"	03201508
3/16" x 3/8" Rivet	03201425
3/16" x 1/2" Buck Rivet	03201427
5/16" x 1/4" Floor Panhead	03202765
1/16" x 1/4" V542 tape	038-01705
Aluminum Coil PPW .040 x 45-3/4	045-05846-1332
Van Body Side Assembly	06116-288084S
#10-16 x 1" Tex Phillips	032-01367
12 Ga. white HDT 40.0121.020W	031-01182
Roof Bow tape, 1/32 x 1 x 216'	V101
Reflectors 2" HDWE	98007Y/98007R
Aluminum Door Post (Extruded Die No. 100)	4057131336
Door Frame Header (Extruded Die No. 1006)	004057130640
285L2 92" WD x 500' 1/4" SM	045168441332L
385PWI x 85' Surface Seal	385-85
Gusset, 1/8" x 4 x 4 aluminum	040-06206
.080 Aluminum	002-13030
3/16 x 3/8 rivet	03201425
Aluminum Roof Rail (Extruded Die No. 5545)	0400078
102" Roof Coil, 4.56lb/ft	514-5-191B
Aluminum Roof Bow (Extruded Die No. 134)	04-00087-1468
PUF C3 A/B Foam (1.9 lb/cu. ft.) Non-CFC	036-04403
Channel, 12 ga., 48 x 120	006-07871B
Bullet Terminals	6SCB
1/4 MS Frame Channel, 10" WD	087-17103-1920

10.2 An on-board water heating system with rapid startup and recovery capacity is required for the purpose of showers for people. A fail-safe, foolproof temperature regulator system for the water is required. Automatic roof venting for vapor and steam escape is also required as part of the box.

10.2.1 Diesel Heaters: Modec will install 2 (two) Alkota 560 Series diesel fired water heaters that will provide instantaneous and continuous (no recovery time) hot water to the system. These heaters produce 560,000 BTU's each (1,200,000 BTU's total) of water heating capability. Temperature control is provided by a flow switch and integrated temperature control device. This unit will consume 4 gallons per hour (approximately) and have Schedule 80 - 3/4" ID steel coil heating elements. These heaters will operate on #1 or #2 Diesel. Exhaust will be vented to the outside, and a pressure relief valve will be plumbed safely downward.

Alkota 560 Series with control valve

10.2.2 Thermostatic Control Valves: Modec will install four thermostatic control valves that will control the functional areas of the decon system. Modec will install electronic “Intellifaucets valves that provide scald protection and maintain water at a pre-set temperature. Modec also installs a temperature gauge for temperature confirmation. These valves also operate as zone on/off valves and will be accessible from the outside of the vehicle.

10.3 No on-board fresh-water storage system tank is required; however, an installed or easily & rapidly deployed waste water system tank for a minimum or at least one hundred (100) gallons is required for temporary run-off containment.

10.3.1 Wastewater Tank: Modec will install a custom designed 100-gallon wastewater tank. Outlet fittings will be designed with 2-1/2" sized ball valves. This fitting will be suitable for hose connections to bladder tanks.

10.3.2 Water Input: The unit will be outfitted with two input ports - one curb and one street-side - towards the front of the vehicle. The input fitting will be 1-1/2” NFT. Brass (not copper) piping is utilized from the input port to heating devices (brass is more durable than copper). The main line incorporates a ball valve, after the pressure-reducing valve ("PRV"), for primary on/off and a drain valve to be utilized as a hydrant flush. The PRV will be installed to accept higher pressures to 300 psi. The factory operating setting will be 75 psi. (adjustable to 125 psi.). The PRV will incorporate removable screens for heavy debris.

10.4 Plumbing and floor drains will be designed with easy access manual valves as an alternative, interim run-off control and/or containment to allow waste water to drain into containment tank or to a 2 ½” NST discharge hose-line. The discharge hose-line shall have a male NST 2 ½ thread and easily accessible for connection to a 2 ½ fire hose coupling. A small electric jockey pump will need to be included in the plumbing in-line with the 2 ½ NST discharge hose-line providing a capability to pump the waste water up to two hundred (200) feet distance to a discharge point.

10.4 Plumbing and Drains: The tank identified in 10.3.1 will have exterior access. A Gould BSP-18 water transfer pump will be included in-line. This pump is rated at 30 gpm and will transfer water past 200 ft. via a separate 1" line. Drains will be clearly labeled and identified. Drain valves will be 2-1/2" NST discharge and easily accessible. Drain access will be street side.

10. 5 The box shall have the ability to be heated and cooled with temperature controls easily accessible from the outside of the box.

10.5 HVAC System: Modec units are typically outfitted with a 13,500 BTU HVAC system with a 5,600-watt heat strip. For the MABAS Program units, we will significantly upgrade the overall HVAC capacity of the system to 23,000 BTU, a large increase in both heating and air conditioning capacity. The unit to be installed is as follows:

American Cooling Technologies Model CS-2 PTO Driven System rated at 30,000 BTU's for both heating and cooling.

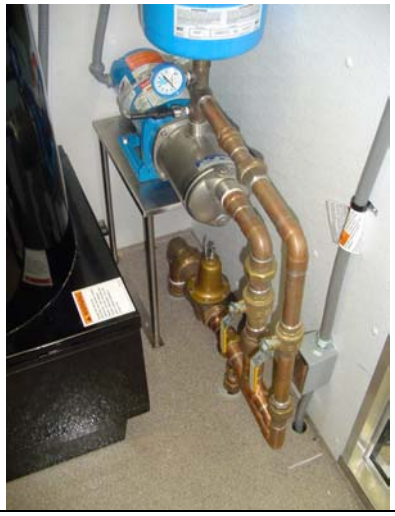
10.6 Showerheads shall be installed in the box as required to provide adequate shower discharge, with adequate pressure and GPM flow to provide full and comprehensive decontamination. An installed water intake jockey pump or pressure regulator system is required to provide appropriate PSI and GPM as needed.

10.6.1 Showerheads and Devices: Modec will install 6 (six) high-flow (5 gpm) rated showerheads. Modec will also install a timer-based system to insure appropriate patient processing. Each showerhead also is equipped with quick disconnect fittings so that hoses with other delivery devices (booms, wands, brushes, etc) can be used as well.

Modec will supply four additional showerheads for exterior operations.

10.6.2 Pressure Regulating System: Modec will install a Variable Speed, Constant Pressure Pump system to handle low-flow situations. Being variable speed, the Gould AquaBoost® Model ABS system makes up the pressure difference at peak demand or low flow situations to maintain constant water pressure to the system. The system includes:

* HMS Stainless steel pump
* Transducer
* 4.8 Amp Controller
* V6P tank
* Pressure Gauge

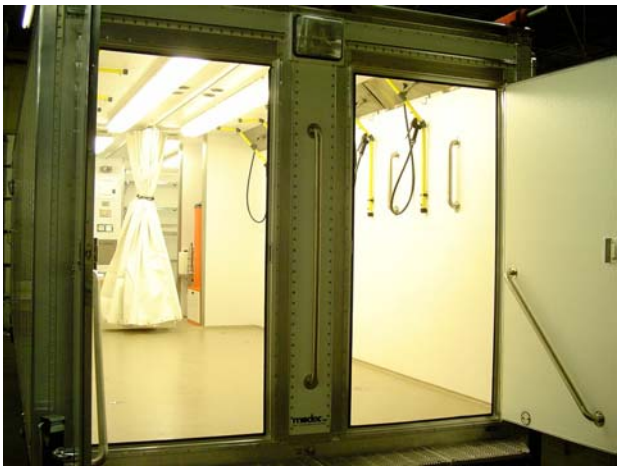


10.7 A two-way intercom/public address system will be installed in the box so communications can be maintained inside-to-outside and the reverse.

10.7 Intercom and Public Address System:
Modec will install an Federal Signal Atchinson PA® system that includes waterproof two-way intercom and a public address system. We will install one Master station (shown across) with two weatherproof secondary stations along with one high volume loudspeaker. These are industrial grade systems designed for harsh working environments as opposed to residential applications.

10.8 Box floor substructure shall be of adequate strength and durability to support multiple people without damaging interior finish and waterproof seals of interior finish.

10.8 Flooring System: Modec is incorporating its highly regarded three-part silica sand epoxy floor system that it introduced to the industry in 1993. Seamless, durable and chemical resistant, this system retains its excellent gripping characteristics even when fully flooded with water. It is extremely strong having a tensile strength (epoxy alone) of 7,800 psi. Our professional installers have done hundreds of decon systems. Being flexible, they can handle extreme temperature fluctuations. The entire decon area consists of a flat surface - there are no wheel wells. Also, a stress analysis of the entire van body has been performed by a Mechanical Engineer and is shown in Section 14. The following are the specific characteristics of the flooring system.



Decking:
1-1/8" exterior grade tongue-in-groove plywood minimum CD grade. Panels to be adhered and screwed to 4" steel I-beam cross members (12" OC) along with construction adhesive that is high strength and water-resistant and meets ASTM standards C557-7. Underside or bottom of floor is sprayed with an undercoating. Floor is completely sealed with epoxy floor covering; seams are caulked with epoxy.

Floor Covering:
Floor is covered with three-part epoxy floor coating system. Epoxy floor is composed of solid epoxy

resin and silica sand.

Physical Properties:
The finished floor has the following physical and chemical properties:
* Hardness (ASTM 2583 - Barcol): 46
* Tensile Strength (p.s.i.): 7,800
* Tensile Elongation: 3%
* Compressive (ASTM C579) (p.s.i.): 8,040
* Flexural Strength (p.s.i.): 12,500
* Bond Strength (p.s.i.): 230
* Izod impact (lbs./in.): .4
* Ambering (ASTM D822 - 200 hrs): 0

Abrasion Resistance (FTMS 141 no. 6197) (mg): 97 Chemical Resistance - ASTM D1308-57 24 hour immersion) No effect from the following: 1-1/2% citric acid, coffee, 10% potassium hydroxide, 20% sulfuric acid, urine, gasoline, motor oil, brake fluids, blood, 10% sodium hydroxide, isopropanol, mustard, ink, 10% muriatic acid. Epoxy shall be 100% resin solids, reacted with suitable hardeners. Selected ceramic coated quartz aggregate (standard color tan is provided) is broadcast into place to provide a continuously bonded surface to the supporting substrate. Includes other suitable raw materials not limited to primers, caulks and sealers. Our installers have a minimum of five years of successful experience.

10.9 The box shall be adequately lighted for navigation of individuals.

10.9 Lighting: Modec will install the following vapor-proof fluorescent lighting (0 degree ballasts with 32 watt fluorescent bulbs) in the system that will provide for ample lighting of all areas:
* 2 x 2' in Command/Communications area
* 2 x 2' in Power room
* 8 x 2' in Decon area.

10.10A The box section and all of its components shall be powered by an installed generator (diesel preferred) which operates independently of the truck/cab chassis electrical system. The generator size shall be sized to also adequately power 110 Volt quartz lights on each side of the box and the rear of the box for exterior perimeter lighting. The generator shall be sound insulated.

10.10B The unit shall also include provisions for a 110-volt shoreline connection, 50-foot length.

10.10A-1 Generator: Modec will install an Onan CMQD 10000 GenSet. This unit will provide the necessary power for all of the systems electrical requirements. This Onan Genset provides dramatically lower noise than any comparable generator in this class. The unit produces 10000 watts at 60 Hz and 62.5 Amps with load-matching, variable speed operation. It includes an automatic glow plug to eliminate preheat time uncertainty. Undercarriage exhaust system provides safe and convenient method of exhausting. The unit features the following:
* 3-cylinder diesel engine
* Permanent magnet alternator
* Pure sine wave output

Onan CMQD 10 KW Genset

* Digital voltage regulation
* Integral enclosed muffler
* USDA spark arrestor
* Intake silencer
* Sound attenuated cover
* Maintenance-free electronic governor
* Automotive type starter
* 10 Amp battery charging
* Hourmeter
* Remote start panel
* Overvoltage, low oil pressure, overspeed and overload safeties
* Electric Fuel pump
* Instant one-touch stop.
* Water resistant controls.

10-10A-2 Scene Lighting: Modec will install two FOCUS 2000 extension pole lights mounted to each rear corner of the unit.

10-10B Shore Power: Modec will provide 2 x 120 V, 30 Amp shore power cords 50' (fifty ft) in length. These are set up for weatherproof shore power hookups shown below. These boxes will be mounted drivers (street) side of the vehicle near the control panel access.

Command Light Shadow SL-335

10.11 The box and its compartments shall be insulated to prevent sound transmission to reasonable allowable levels.
10.12 System will be capable of being drained after use to prevent damage during freezing weather.
10.13 All doors/hatches/compartments on exterior of vehicle will have locking mechanisms.
10.14 Exterior surface lighting on the sides and rear of the box powered by the onboard generator.

10.11 Sound Attenuation: The box is foam insulated to a level of R-14 and provides extensive sound attenuation.

10.12 Drains: The unit is equipped with drain ports outfitted with valves. In addition, Modec will supply a custom fitting that incorporates an air chuck so the entire plumbing system can be evacuated by compressed air.

10.13 Access Panels: All access panels with have locking mechanisms.

10.14 Exterior Lighting: All exterior lighting for the unit will operate from the Generator.

10.15 As designed by the manufacturer, a decontamination box and/or vehicle leveling and stabilization system shall be provided to assure proper drainage, run-off control and a safe level-operating platform for processing individuals & attendants.

10.5 Self-Leveling System: Modec is installing a leveling system designed by International for Pro Van USA that incorporates the existing air suspension system provided by International Trucks. It is an automatic leveling system that utilizes dual valves and dual air bags to automatically level the unit whenever it is parked and is deactivated when the vehicle is moving. It is activated by placing the unit in park and then pumping the brakes several times. It has the capacity to self-level up to 6" in distance. It does not require manual adjustment or other operator activation. This system will insure proper discharge, run-off and safe level-operating position automatically. In addition, two rear stabilizing and leveling jacks (Power Plus units) will be mounted on the rear of the vehicles. These electronic jacks are controlled from a master panel located in the curbside rear storage box.

11.1 The box design compartments require segregation of two-(2) decontamination processing lines. Conceptually, people enter the box from the front or back, and exit the opposite side. A series of shower compartments with segregated drainage systems provide adequate decontamination of each individual.

11.2 The compartment paths should also be designed to segregate males and females.

11.1 and 11.2 Compartment Separation: Modec's design provides for complete gender separation within the unit thus forming two processing lines. With a movable curtain, the interior of the unit can also be used for technical decon operations with the removable roller systems or for personnel decontamination. The design of the unit allows for the processing of non-ambulatory patients to enter from the rear and exit through two side doors. The series of three shower compartments, are also separated by a movable curtain and are designed with their own drainage. Modec will also install as part of its floor system, small berms to prevent the overflow/cross contamination between each shower compartment/area. See Section 7 in Proposal for layout drawing.

11.3 At the entry point to the box provisions must be provided so individuals can disrobe, place their clothing in labeled garbage bags, and give them to an attendant, receive a bag that can be sealed shut for wallets and purse contents, and receive shower materials.

11.3.1 Rear Exterior Processing Zone: Modec's system provides a unique solution to this requirement that not only facilitates steady patient processing, but maximizes the interior space and processing logistics of the decon vehicle. It provides for easy connection to portable shelters without the need for costly or unwieldy "boots" or transition materials.

Utilizing the rear mounted shelter feature that Modec has previously designed, we will install an integral rear processing area that patients can use to disrobe and place their belongings into a bag. This area is completely modesty protected, gender separated and prevents contaminated articles from entering the decon area (where it is assumed that the majority - 80 to 90% - of overall contamination is anticipated to exist).

Aurora, Illinois Hazmat unit rear exterior processing area designed and installed by Modec.

11.3-2 Lift Gate System: As for ambulatory patients being processed inside during inclement weather or otherwise, Modec is providing a patient lift system that assists first responders in handling stretcher borne patients. This lift system is significantly safer for the patients and first responders and is explained in further detail below. This area also serves as a transition zone between clothing removal and the actual decon area (See further discussion below

Liftgate

11.4 Upon exit, provisions shall allow for towel drying and dressing in modest gowns, etc.

11.4 Shelving: Modec is installing two large shelf units (for towel and clothing storage) and a redress area after the shower compartments. Shelves are adjustable. Once changed, patients exit through one of the two side doors. For safety, the exit stairs (and handrails) are integrated into the interior of the unit, thus eliminating the need to set-up exterior steps. Being inside, patients are much safer in inclement weather. See drawing and elevations Section 7 of the Proposal.

11.5 A box exterior storage cabinet is required for storage of some supplies and a centralized control panel of box systems will be installed in the cab(see Item 11.10 for detail).

11.5 Exterior storage cabinets: Two cabinets will be provided (lockable and weatherproof) with sliding trays. Additionally, an exterior storage box with a rollup style door and adjustable shelves will be provided.

11.6 Removable steps/stairways with handrails shall be provided for entrance/exit as needed. All walking floor decontamination areas shall have non-slip, safe floor provisions.

11.6 System Entry/Egress: With our liftgate concept, we can use a two-step portable stair system in conjunction with the lowered liftgate; so that entry to the unit is significantly safer and easier, especially for 1st Responders in PP&E. Exit stairways are incorporated internally to the unit for safety and ease of egress. This also eliminates the need for an additional set of portable steps. Egress steps have lighted pathways and handrails.

Liftgate Specifications: Modec's Liftgate provides safer handling of stretcher borne patients. Manufactured with a non-slip surface, this automated liftgate is remotely activated and has a fail-safe manual system. Video of the system is provided in the CD-ROM. The following are the salient specifications:

* Toggle Switch Control
* Level Ride Platform
* Fully Enclosed Pump and Cylinder
* Auto Safety Latch System
* Torsion Assist Closing
* 150 Amp Protection
* 1,600 lbs. Capacity
* Rear extension for personnel safety
* Handrails for safety
* 102" wide x 78" long
* All aluminum (TLV-125-16)

Stretcher borne patients are safely processed into the vehicle with Modec's liftgate system.

11.7 Provisions for stretcher borne patient's box interior & exterior decontamination are required.

11.7 Stretcher Borne Patient Handling: As part of Modec's proposed movable roller system that can be used inside or outside, we custom fabricate our own roller system. Our roller systems also easily handle backboards of all types. Below is the supplied "T" for decon.

Modec Roller System with Raven transport tray

Modec roller system with underside spray boom

Custom Roller System: Modec fabricates its roller system in-house to meet the requirements of each apparatus. The MABAS portable roller unit will be custom manufactured by Modec. It will be 276" in length and 24" wide (wider than industry standard of 18"). The rollers are 1-17/8" in diameter and placed on 4" centers. The roller axles and rail are of stainless steel construction. Our unit also provides MABAS with the following operational positions:

* Affixed to street side wall (for safe processing of ambulatory patients)
* Separate (detached) exterior processing on saw horses.
* Affixed to interior wall
* Separate (detached) processing on saw horses inside.

11.8 Exterior box decontamination shower booms will be considered in addition to the box's interior capability. Exterior boom systems should include modesty drapes and/or roll down awning with modesty panels. Run-off control provisions shall also be provided.

11.8-1 Exterior Barrier: Modec will be installing its proprietary design external modesty barrier. The barrier is constructed of heavy-duty vinyl, can be rapidly deployed by three people in under one-minute and is easily decontaminated. This one-piece design eliminates support arms normally found on standard awnings. Moreover, this system is constructed with heavy duty anodized aluminum posts 1-1/4" in diameter - significantly stronger than RV type awnings. The frame system incorporates a high-wind locking brace and the posts can be secured to the ground as well. Modec also supplies end-pieces that allow easy entry/egress for total modesty protection. Standard color is red

11.8-2 Decon Booms: Modec will be supplying the unit with 4 exterior boom plates. These stainless steel plates are configured with quick-disconnect style stainless ports that can be used with a variety of devices including decon booms(4 provided), shower sprayers (4 provided), shower heads, brushes or wands.

Along with a 10' x 24' (8" side walls) Enpac custom berm to be supplied by Modec (with submersible drain pump) MABAS will have maximum operational flexibility for exterior operations with complete containment and modesty protection

Modec will also be installing a 20' Standard awning on the roadside of the vehicle. (Reference: Carefree of Colorado Freedom Series or MABAS alternative specified)

11.9 An interior removable roller system for decontamination of non-ambulatory persons on backboards. Roller system will be capable of being installed in the interior or as an exterior of the box or for ambulatory decontamination purposes. A stand-alone roller system for use along side of the exterior mounted shower booms is also acceptable.

11.9 Roller System: Modec's Portable roller system is described in full detail in Section 11.7 above. The system which features an underside spraying system, can be deployed in several positions inside and outside of the apparatus affixed to the street side wall or on a stand-alone basis.

11.10 As part of the decontamination box unit – exterior cabinets with lockable doors shall be included and integrated as part of the body's design. The subject cabinets are for convenience storage of needed materials and expendables. The cabinetry shall be watertight design.

11.10 Boxes: Two exterior boxes with lockable doors will be installed on the "skirt" of the vehicle.

11.11 Keying – The customer desires all exterior doors to be keyed identical on all vehicles. It is also desirable that the truck chassis ignition, glove compartments and exterior doors also be identical keying for all units. If exceptions are noted due to truck chassis manufacturer limitations, this expectation will be waived by the customer.

11.11 Keying: Modec will provide identical keys in all allowable situations.

12 MISCELLANEOUS COMPONENTS TO BE SUPPLIED BY MODEC

12.1 CAB PASSTHROUGH: Modec will install a pass-through portal from the cab of the vehicle to the Command/Communications/Scene Management Area. Our teaming partner Pro Van USA has developed a proprietary methodology for these passthroughs that does not violate any structural integrity of the vehicle or the truck manufacturer's warranty.

12.2 SCENE MONITORING CAMERA: We will install a scene management camera system consisting of two exterior cameras and four internal cameras with a monitor located in the Command area. Locations are denoted in drawing provided in Section 7.

12.3 COMMAND/COMMUNICATIONS SCENE MANAGEMENT AREA: Modec will install this area as part of its basic floor plan (seen in Section 7 of our proposal). The area will be completely sealed from the decon and power room area of the apparatus. Accessible from the cab via a portal, this will provide working space for two personnel. The area will include one workstation and one window will be provided for exterior observation.

Decon Injection System:
Modec will provide an automatic injection system consisting of a Dosmatic A20 unit that will provide adjustable injection into heated motive flow for distribution to each shower station in the unit and one exterior port. Each decon sprayer will have its own on/off capability.

Modec is also installing the following Components:

- **Curbside Stainless steel chute.**
- **Generator exhaust to be ported will vehicle stacks**
- **Chassis to have two above vehicle chrome exhaust stacks.**