

O.M.A.R. TECHNOLOGY S.R.L.



Progettazione e Costruzione attrezzature speciali
Planning and construction special equipments

MOBILE SURGICAL HOSPITAL



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FIELD HOSPITAL SYSTEM

Please allow us to present our line of containers with extensible walls designed on the basis of the experience gained over 20 years in the construction of EXPANDABLE SURGICAL UNITS as: OPERATING THEATRE INTENSIVE CARE UNIT, PHARMACIES, ANALYSIS LABORATORIES etc and EXPANDABLE SERVICE UNIT as KITCHEN, WORKSHOP, COMMAND STATION etc , all of which have undergone, and successfully passed, tests at the appointed Military Technical Centres, including the Climatic Chamber test, and are used by the Health Departments of the Italian Armed Forces in the various military and humanitarian missions in the following country

SOMALIA	from	December	92	to	March	94
MOZAMBIQUE	from	April	93	to	December	94
BOSNIA	from	January	96	to	July	97
ALBANIA	from	February	97	to	August	97
KOSOVO	from	May	99	to	Today	
AFGHANISTAN	from	September	03	to	Today	
IRAQ	from	August	04	to	February	08
CHAD	from	April	07	to	Today	

and these performed well in hot and dusty zones such as Somalia Iraq, as well as cold areas like Bosnia.

We are certain that we can offer a functional and valid product that meet all needs when used as:

OPERATING THEATRE
INTENSIVE CARE UNIT
FIRST AID UNIT
ANALYSIS LABORATORY
PHARMACY
RADIOLOGY UNIT
TOMOGRAPHY UNIT
DENTAL UNIT
FIELD KITCHEN
COMMAND STATIONS
WORKSHOP etc.

These units are unique in that:

- during transport they have the dimensions of ISO 1C containers (20") while during operations, with the walls extended, they have a surface area of approx. 31 or 22 m².
- The surface or the floor is at the same level
- the walls, when extended, do not require any bottom support.
- the containers can be installed on any morphology of terrain.
- All the equipments are fixed inside the container and they remain in the same position whether in operation or during transport. In this way the container will be operative in a very short time (about 3 minutes)
 - vehicle loading and unloading operations **are performed by a single operator using a push button panel without using external means such as cranes, bridge cranes, lift trucks or mechanical lifting equipment.**

THE SOLUTION WE PROPOSE

The solution that we propose is based on the experience acquired during the previously mentioned NATO/UN missions and liaison with Italian and other country soldiers who took part in these missions, performing more than 4,000 different type of operations.

The arrangement of the Shelters we are showing you, is for demonstration purposes, and may vary depending on your needs, and on the size of the area available and its configuration.

We propose 4 types of Shelters for this project:

- 31 Sqm. Expandable Shelter – OPERATING THEATRE – INTENSIVE CARE UNIT
- 22 Sqm. Expandable Shelter – RADIOLOGY-
-
- Standard size Medical Shelter – LABORATORY- PHARMACY- STERILIZATION - STERILIZATION
- Standard size Shelter –SERVICE GAS SYSTEM,
- DWELLING CONTAINERS (Patient wards, connection, ambulatory etc..)

MAIN CHARACTERISTICS

31 Sqm. Expandable Shelter

EXTERNAL DIMENSIONS



During Transport Length 6050 mm Width 2450 mm Height 2450 mm.



During operations Length 6050 mm Width **5600 mm** Height 2450 mm.

OPERATING THEATRE



INTENSIVE CARE UNIT



MAIN CHARACTERISTICS

22 Sqm. Expandable Shelter

EXTERNAL DIMENSIONS



During Transport: Length 6050 mm. Width 2450 mm. Height 2450 mm.



During Operations :Length 6050 mm. Width 4000 mm. Height 2450 mm.



RADIOLOGY

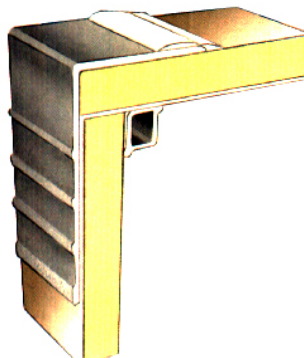


STRUCTURE

The base and perimeter structure is made from anticorodal extruded aluminium sections; tubular steel pieces are fitted at the lower and upper ends of the structure to allow the lower and upper corner blocks and the containment C of lifting jacks to be welded onto the structure.



WALLS AND ROOF



The walls and roof are made from steel/polyurethane/steel bearing type panels with a thickness of between 38 mm. and 45 mm. and feature:

- water hammering resistance
- shock proof characteristics
- resistance to fire and flame (class B2)
- vapour sealing
- protection against magnetic and electrical fields
- sound-proofing
- resistance to corrosion
- resistance to chemical and biological aggression
- heat dispersion coefficient of 0.42 K

FLOOR

The floor is made from special aluminium strips with a thickness of mm. 40, inserted and electro-welded to the base structure.



DOORS

The access doors (2) are located in the centre of the end sides. They are built from anticorodal extruded aluminium pipes sealed with closed cell polyurethane and lined with aluminium sheets.



HYDRAULIC SYSTEM

The wall closing, opening operations and extension of the hydraulic jacks are performed by a **single operator** using a push button panel.



The system comprises an electro-hydraulic control panel supplied by 24 Volt batteries in DC or alternatively at 220V 50 Hz.

The hydraulic system with stainless steel pipes has sequential valves, flow dividers and hydro-piloted valves.

The extensibility and closure of the walls operations are performed using the hydraulic jacks fitted onto the base structure. These jacks support the walls when the container is in use and make the use of special supports below the container unnecessary.

In the even of a fault in the system, the walls can be opened and closed using a manual hydraulic pump which is provided.

The container is lifted by 4 hydraulic jacks arranged in special housing at the end of the container, these make it possible for a single operator to load and unload the vehicles without needing external equipment such as cranes, bridge cranes, lift trucks etc..

The operator uses the push button panel to operate the single hydraulic jacks, to move them together, two at a time or individually, allowing for loading and unloading operations of the vehicles and levelling of the container in any morphology of terrain



ELECTRICAL SYSTEM

The electrical circuit complies with EEC standards and current law provisions as regards the category and final use of the container. The electrical circuit is installed in special raceways fitted inside the containers.



AIR-CONDITIONING

Unless expressly requested otherwise, the containers are conditioned using single-block or split wall-mounted air conditioners.

The conditioners are suitably resistant to heating systems.

Containers used as Operating Theatres or Intensive Care Units require special conditioning with absolute filters and high air recycling frequency so these conditioners will be installed on the service container with the rest of the support equipment required.

INTERNAL LININGS



All the containers used for hospital purposes are internally lined with PVC suitable for each single use. The walls and ceiling are made from anti-static material and the pavement from conductive material. All the joints of the PVC on the walls, ceiling and floor are electro-welded as required by current law provisions.

SEALS

All seals are silicone.

Sealing against heavy rain or dust is guaranteed by double seals fixed perimetally on the extensible walls and access doors.

The interior design and equipment supplied are based on the client's needs.

On request, we can provide further documentation on the specific type of shelter you may be interested in.

OUR APPLICATION



31 Sqm OPERATING THEATRE



31 Sqm INTENSIVE CARE UNIT



EXPANDABLE RADIOLOGY



EXPANDABLE LABORATORY

STANDARD SIZE MEDICAL SHELTER



The characteristics of the container's structure vary in accordance to the container's purpose.

This container is built in steel/polyurethane/steel with the sandwich technique. The container roofs and walls used for hospital are built with a structure steel/polyurethane/steel with a 40-mm layer of insulation; the aluminum floor is equipped with a special reinforcement structure

The technical characteristics of the steel/polyurethane/steel panels in the containers fitted out for hospital use are the following:

- Resistant to water hammer;
- Resistant to vibration;
- Resistant to fire and class B2 flames;
- Vapour proof;
- Protection against magnetic and electrical fields;
- Sound insulation;
- Resistant to corrosion;
- Resistant to chemical and biological phenomena;
- Heat dispersion coefficient: K 0.38

The roof, wall and floor seams are all electro-welded with suitable material to avoid infiltration and to make cleaning and disinfecting as safe and easy as possible. The system we have chosen makes use of bearing panels and eliminates all conductive points. Furthermore, should any part need to be replaced or repaired, these operations are possible, because the procedure to be followed is the same used for the repair of the chassis of vehicles. The container pieces can be easily replaced. Should a piece be damaged, it does not affect the other pieces.

The external dimensions of the containers for hospital use comply with ISO 20' 1C standard. The upper corner blocks are designed to enable the extension of the walls and are made of special shaped steel profiles, which enable also the lifting and the moving of the containers with bridge cranes or cranes. The corner joints are resistant to deformation during transport.

The container corners are adequately resistant to lifting, moving, suspension and fastening during transport. Their structure enables them to be lifted and moved by means of the corner blocks they are equipped with as long as the proper lifting cables are used with the safety hook. (Said cables are to be long enough to enable the lifting of the container without damaging the structure). Refer to the tables which will be fixed to each container.

The fastening of the containers to the truck flatbeds is to be carried out by means of the specific Twist-Lock mounted on the flatbeds (ISO regulations) or with belts and belt tensioning devices.

Each Shelter is equipped with its own hydraulic fluid system which enables a single operator to perform the following operations, using the push-button panel to work the 4 hydraulic lifting jacks, which can be operated synchronously, in pairs or individually.

This system makes it possible to position the Shelter in areas where the terrain is rough and unlevelled.

The electrohydraulic system which activates the hydraulic jacks is powered by 4 24 volt batteries. This enables the above mentioned operations to be performed autonomously, without the aid of cranes, bridge cranes or fork lift trucks.



PHARMACY

The heavy structure of our containers allow to move them in different way and with every loading systems.

We tested our containers with cranes, fork lift with spreader and inside the C 130



MOBILE DWELLING UNITS



The versatility of the container allows to satisfy each individual requirement and it permits to carry out complete dwelling complexes made up of, as a not comprehensive example, accommodations, kitchens, mess-halls, offices, meeting-rooms, laundries, recreation areas, ablutions, warehouses, small workshops.

The unit is composed of a galvanised and pre-painted sheet steel framework. 60 mm. thick panels have been chosen for walls, which are polyurethane foam insulated in order to obtain a high thermal insulation and to offer a good environmental comfort, considering the particular use of the unit itself. Wall panels are interchangeable so that provided doors and windows may be fitted in any perimetrical position. Modules may also be coupled to form larger and more equipped, even two-storied, complexes.

In order to make the container more functional, we offers a wide range of options and accessories, such as corridors, stairs with landings, gangways, double saddle roof, which allow a better arrangement of modules.

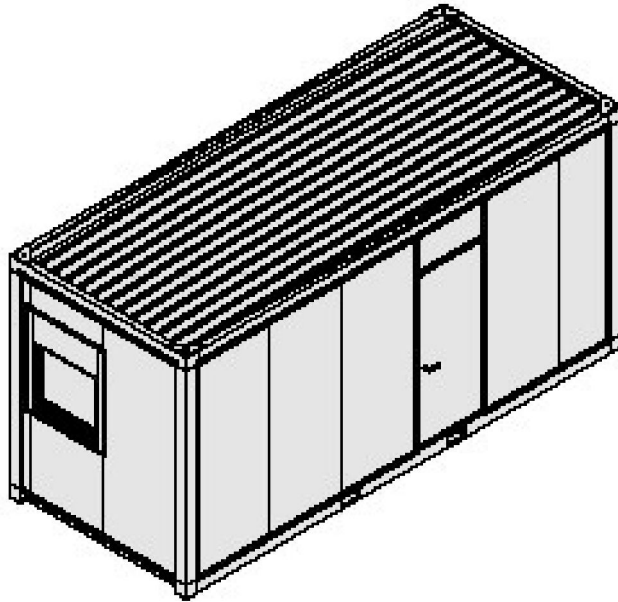
The container may be forwarded either erected or disassembled, "transpack" type, to obtain a greater rationalisation of the transportation cost; in this case, it is reduced as a "sandwich", made up of base and roof, connected by suitable metallic spacers; wall panels, door and window frames and accessories for the installation on site are placed inside the "sandwich".

Thanks to their particular features, modules, which may be disassembled, carried and erected elsewhere several times, are the best to face emergency conditions or situations requiring temporary solutions.

MAIN CHARACTERISTIC

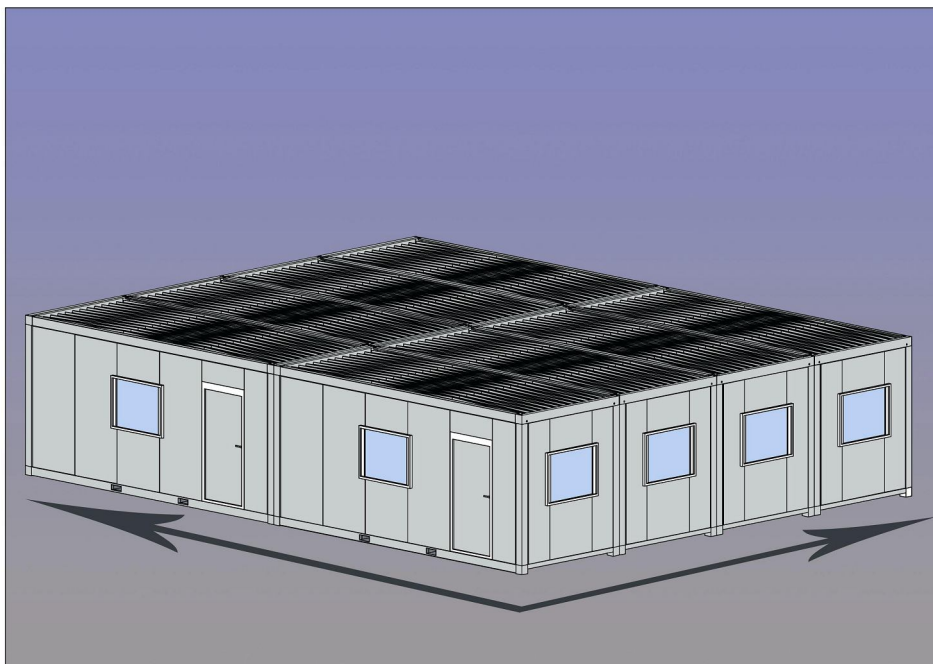
1. MODULAR PREFABB

The structure color is RAL 7035 (clear gray) with external size 6000mmx3000mm, H 2890mm (internal H 2500mm),



The offer concerns the supply of the serious structures 7000, to use hospital, walls with polyurethane insulation.

Structure 7000 facilities can be horizontally assembled without limits, on the short or long side, and can be superimposed on two levels



2. FURNISHED

The structures will be furnished in list;

- .. Type 1 – hospital room
- .. Type 3 – passage:
- .. Type 4 – service:

3. STRUCTURE

The structure that will be employed for this construction is the series 7000. The structure is composed from 3 principal elements: a plinth, a roof and 4 columns

3.1.1 BASEMENT

The basement is composed from:

- 1) UPN Profile 140x60x7 mm (longitudinal)
- 2) UPN profile 80x45x6 mm (transverse)

The basement is self-supporting is constituted: the upper part is made of 18 mm water-repellent chipboard covered by PVC placed on site. The pavement is insulated through glass wool, sp. 50 mm under the chipboard in order to protect the wood and give the structure a higher insulation level. The floor is covered with PVC homogeneous.

The weight capacity of the basement is of 250 kg/mq

Fork Lift predisposition is not included.

3.1.2 Roof

The lower part of the roof is made with staves in pre-painted galvanized sheet-iron, 5/10mm thick. The middle part is filled by glass wool, 60 mm thick and 12 Kg/mc density. The upper part is made of 6/10 thick profile corrugated sheet-iron galvanized.

Thermic roof insulation $K = 0,711 \text{ Kcal/sqm h } ^\circ\text{C}$

The weight capacity of the roof is of 125 kg/mq, flat type with pending slope of 3%

Outside the columns there are 4 PVC pipes Ø 50 mm for waters waste and is not included additional roof.



3.1.3 COLUMNS

The columns are made of cold rolled S235JR steel sections, particular shape, with antirust and polyurethane enamel color RAL 7035

3.1.4 ASSEMBLAGE

The structure is assembled through bolts of the components: base, roof, corner outside

3.1.5 WALLS

The external walls are realized with sandwich panels with polyurethane, thickness 50 mm, the external side is embossed and white-grey color

The internal walls are the same of the external walls

Thermic insulation polyurethane: $K = 0,39 \text{ Kcal/mq h } ^\circ\text{C}$

3.1.6 INSIDE COVERING ROOF

The lower part of the roof is made with staves in pre-painted galvanized sheet-iron, 5/10mm thick



3.1.7 DOORS AND WINDOWS

- Windows size: 971 x 1280 mm , leaf shutter, with double glass 4/15/4 and roller shutter, pvc material, Ral 9010;
- .. Vasistas size: Dim 500 x 500 mm, Ral9010
- .. Dors size: dim 1200/900/800 x2100 mm, steel frame, RAL9010

4.1.1 ELECTRICITY

- Produced in accordance with the italian laws and made of:
- .. Wall patch box IP55
- .. 1 automatic differential magnetotermic circuit breaker 1P+N 30mA 25A 2m
- .. 2 automatic magnetotermic circuit breakers, socket line 1P+N 16A 1m
- .. 1 magnetotermic circuit breaker, light line 1P+N 16A 1m
- .. 2 ceiling lights 1x36W
- .. 2 socket boxes IP55 (n.4 sockets standard Italian/germanan 2P+T 16A)
- .. Roof lamps, neon, 1x36W and 60W
- .. Conditioning with split - external unity (= 9.000 Btu) for tropical climates
- .. Electric absorption 3KW (single construction)
- .. Standard wiring 220Volt

Some applications



Toilettes



Showers



Joining system



Assembling

Some applications



CORRIDOR ZONE



PATIENT ROOM





WAITING ROOM