This dissertation provides a design project of a Temporary Residence Complex in Scalo Farini area in the city of Milan. The project tries to suggest a design solution by using the ISO container as building components. The availability and the low price of this material in addition to its easy transportation make it as a possible resource for a low cost building project. This document tries to study the technical issues to provide viability for this component as well as creative solution for creating dynamic and live urban space.

The master plan of the area of Scalo Farini has been designed and developed during a two year multi-disciplinary course. This enriches the project from the point of view of studying the functions and activities. The main program for this area with more than 350000 square meter surface was a cultural zone. It resides three theater buildings in different scales (400, 1000 and 4000 seats), a city museum, a mediatech institute and a residential building area. However, the further researches indicate that having some other activities in order to have a live and safe area during the different hours of a day is inevitable. Therefore, some other activities are proposed in the site based on the different needs. Having different cultural activities in the scale of city and even more than the boundaries of Milan brings users and performers to the site in a scale bigger than the neighborhood. According to the system of night transport in Milan, providing a space which temporary can resides these users was considered. Furthermore, having the artists and performers which might have a performance for a period of time, and not necessarily all of them are from Milan, brings the needs of creating a residential space for them. These demands lead us to propose to have some temporary residence buildings in the site.

The inhabitants of these residential blocks are mainly artists. From another point of view, the life of an artist can be projected as an exhibition; therefore, I tried to intensify this sense in designing them. Some parts of these residential blocks are working as an exhibition spaces or simply they are exposed to the public with a high transparency. However, having a certain level of privacy in a living space is still mandatory. By placing some private cores in the central parts of the units, this fact is taken into consideration.

Furthermore, the aim of the project was not only creating a temporary residential neighborhood but also a context to enhance the sense of a community even in a temporary space. Functioning as a temporary residence yet having the sense of a collective space is tried to be achieved by providing some public buildings or spaces to site collective activities and to amplify the interaction among people. For example, the big piazza in the middle of the site, inspired by the Italian historical piazza, tries to create a forum for public activates such as small weekly markets, some performance like street theater or concerts. The strips among the raw of the building blocks are also functioning as public space with different uses while some services like public laundry and so on are also provided in these spaces.

The temporary aspect of this project is reflected in both terms of functions and elements. The main function as mentioned before is the temporary house for the artists. Moreover, the building components and the construction techniques try to be adaptable to the upcoming possible changes in the function of this project as well as complete dismantling of it. Using the ISO container as a recyclable and transformable material follows this aim. Studying the possible change in the massing plan has been done based on this concept and indicates that the future transformation is possible. Although, this aspect needs further and meticulous research in order to avoid from creating an urban void in the project. To approach this purpose the use of movable landscape element was necessary. Therefore, the soft landscape elements are chosen based on the priority of the easiness of their transportation.

1- Cordell House:

DESIGN MODERNO – USO DEL LEGNO (Modern design- use of wood)

Numen Development

P: 832 692 8958

F: 866 709 0162

1858 sq ft (172.6 sq m)

single family residence with 3 bedrooms and 3 baths.

Main house (1538 sq ft= 142.9 sq m) 2 b, 2 bth with 20' x 30' "loft style" dining/living area and additional office area.

Guest quarters (320 sq ft=29.7 sq m) 1 bed, 1 bath with storage/shop area.

Cordell design is comprised of the following four container modules:

- Cordell House Kitchen
- Cordell House Master
- Cordell House Office/Bed/Bath
- Cordell House Guest Quarters

This project can be substantially dismantled into component parts for reuse or recycling at the end of its useful life.

Cordell house fact:
Four shipping containers (technically known as ISO-compliant inter-modal shipping units) were utilized in the design. Two 40-foot (12,2 m) long, 9'6" (2,9 m) tall containers form the two bedroom units, which directly support the three roof beams. The rear freestanding guest unit is a third 40-foot (12,2 m) container. A 20-foot (6,1 m) long, 8'6" (2,5 m) tall unit forms the kitchen which opens onto the main living area. The main structure was set in a single day and the house was enclosed during the first month.

- The foundation was created using 34 small piers built on concrete pads 24" below the expansive surface soils. The high number of small piers makes the overall structure less susceptible to settling and seasonal movement.
- The roof and floor are Structural Insulated Panels (SIPs) which are a thick continuous insulating core sandwiched between engineered panels made from recycled wood products. They are custom-fabricated for the project, so no waste is generated in on-site construction.
- The container modules were insulated using a thin ceramic coating on the exterior and undersides. "Supertherm" gives the equivalent of 6 inches of fiberglass insulation at just 10 mils of thickness. Developed as an insulating and fireproofing coating for industrial use, it is completely non-toxic and is used as a coating by NASA for the shuttle booster rockets. This product has received the MBDC Cradle to Cradle certification
- The shade screen installed over the steel supports on the south side of the house blocks much of the heat-load from the southern sun.
- The insulated polycarbonate clerestory window over the master bedroom provides daylight for the entire living area of the house. It was oriented to allow more direct sunlight during the colder winter months and less during the summer season. Windows were oriented to reduce midday heat loads while allowing daylight in strategic areas to reduce daytime lighting requirements.
- Many of the materials and finishes were specifically chosen for their recycled and/or non-toxic content and overall sustainability. Paints and finishes are extremely low-VOC (volatile organic compounds) with very low levels of chemical solvents.
- Wall panels are formaldehyde-free fiberboard from recycled wood products and structural beams are engineered from recycled wood as well.
- Other environmentally preferable products include bamboo flooring and reclaimed materials such as the glass in the master shower and the recycled steel components used to create the Master Bedroom sink.

How does the cost of container construction compare to traditional home construction?

There are a wide range of variables that impact the overall cost. Many of those are driven by the owners' preferences on mechanical systems, structural components, and interior finishes. Our completed projects have ranged from $100/sq.ft. ($1076/sq.m) to $150/sq.ft ($1614/sq.m) with the upper and lower limits being the exceptions.

How much does a used shipping container cost?

Although you can find containers advertised for as low as $1000, they are traditionally heavily used and often severely damaged. These containers, in general, are not aesthetically or structurally viable for home construction.

Our most common "raw" components – 40ft (12,2m), high cubes (9’6” = 2,9m tall) – “One-trippers” that have been used for import from Europe or Asia and are typically in pristine condition, range from $5000-$6000 depending upon availability. Containers that have actually been in rotation and are more used range from $2800-3600 depending upon overall condition.

2. HERCon & MECC

Expandable

Weatherhaven

HERCon: The new HERCon is a hard-walled expandable shelter that can be shipped as an ISO container. When deployed on site, the shelter can expand from three to six times larger than its shipping footprint, depending on the HERCon model that is ordered. The HERCon can be used for staff sleepers, small kitchens and dining halls, offices, dormitories, and medical aid stations

Transport Benefits :

Cost savings in shipping as the HERCon can be transported at regular container rates when ready for delivery. Deployment efficiency as the HERCon will expand three to six times when erected for occupancy on site. Equipment packs into the centre core of the HERCon and stays inside during setup, so equipment does not get damaged by outside weather conditions.

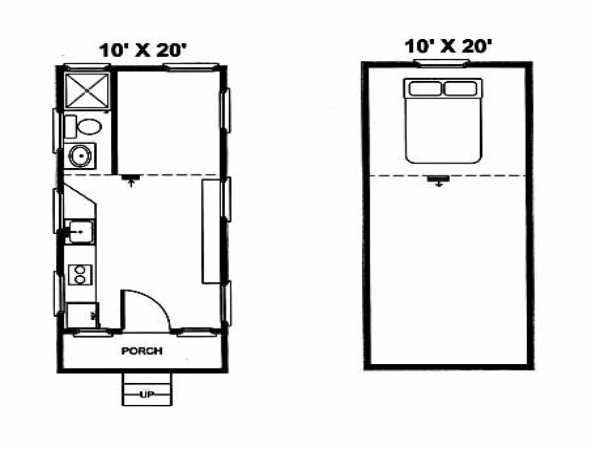
MECC: is a rugged, three-in-one, expandable container that combines ISO standards with Weatherhaven fabric technology. Commercial applications for the MECC™ include remote-site wash houses, kitchens, food prep areas,

laundry facilities, laboratories, and portable medical clinics

3. Lodge on Wheels

Fully equipped cabin-on-wheels

Martin House to go



4. ISO CONTAINER HOUSE

Mega Shelter

5. Holyidea Logistics Equipment

House 38 is modified on the basis of a 20'HC shipping container,the external dimension is 6058mm (L)*2438mm(W)*2896mm(H).The price is USD 10800/set exwork,We'll install insulation board inside walls and roof to keep away from the heat.

6. Holiday Home Design

Small:

FEATURES
BATHROOM / DOUBLE ROOM / BALCONY

LENGTH	mm.	7.000+2.050
WIDTH	mm.	2.900
TOTAL HEIGHT	mm.	3.300
WEIGHT	kg.	35.000
FLOOR HEIGHT	mm.	550
INT. MIN. HEIGHT	mm.	2.180
INT. MAX. HEIGHT	mm.	2.640
COEFFICIENT OF THERMAL INSULATION	J/KgK	1.200
% GLASS SURFACE		14 %
ROOF SLOPE		13°
SIZE OF BATHROOM	mq.	4,06
SIZE OF BEDROOM	mq.	9,49
SUMP PIT DIMENSIONS	mq.	4,6
BEDS	nr.	2
WARDROBE CAPACITY IN LITRES	lt.	2.100

EXTRALARGE:

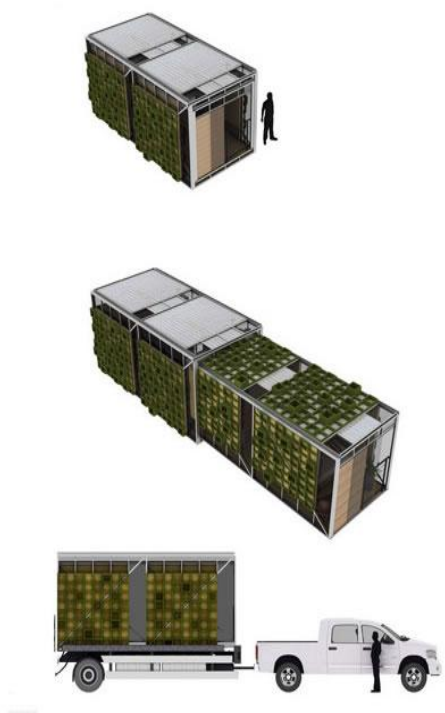
FEATURES
2 BATHROOM / 2 x DOUBLE ROOMS/ KITCHEN - LIVING ROOM

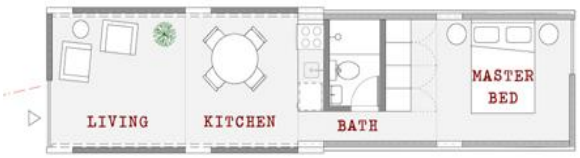
LENGTH	mm.	11.100
WIDTH	mm.	4.000
TOTAL HEIGHT	mm.	3.400
WEIGHT	kg.	8.000
FLOOR HEIGHT	mm.	550
INT. MIN. HEIGHT	mm.	2.080
INT. MAX. HEIGHT	mm.	2.600
COEFFICIENT OF THERMAL INSULATION	J/KgK	1.200
% GLASS SURFACE		7%
ROOF SLOPE		13°
SIZE OF EACH BATHROOM	mq.	7,54
SIZE OF EACH BEDROOM	mq.	20,55
SIZE OF KITCHEN	mq.	10,56
BEDS	nr.	5 +2
WARDROBE CAPACITY IN LITRES	lt.	3.500
COOKER CAPACITY IN LITRES	lt.	1.600

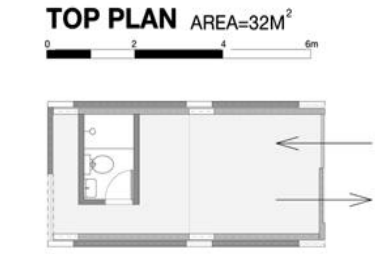
7. Ecobitat

EcoBitat is developed from standard 1.22 m x 2.44 m OSB plate. Its size is 2.44 x 3.1 x 12.20 m. Beside its steel framing, EcoBitat is designed to have ability to be applied on any types of topographies, as it has drop-down telescopic legs that can be adjusted adapted to the surface condition. EcoBitat is also designed mobile, it can be loaded to a truck.

Felipe Campolina







8. Port a Bach

- portable,
- secure,
- high-level finish,
- designed to be environmentaly clean
- comparatively inexpensive,
- comfortably sleeps two adults and two children.

T H A T A L L O W S :

- transportation,
- immediate, flexible and long-term solution that enables you
-to use your land without investing in a permanent property commitment,
- for future development, ideal for leased land situations.
- to be power, water and sewer independent, it is well suited
- to remote or non-service supplied land
- also be connected to available services.
- quick and easy transportation (via truck or helicopter) and
- installation to any orientation with minimal impact on site,
- unfolding to create a living space and refolding to create
- a secure unit for in situ storage or relocation.

Atelier Workshop

9. Ecopods

Built from recycling steel shipping containers, ecopods are 1280 cubic foot (8x20) steel storage container transformed into a living, working and high end display spaces. The Ecopod is a transformed, designed built, multiple use, eco-friendly, building that promotes the best use of portability, off grid power supply capabilities and low environmental foot print. Powered 'off grid', with an 80 watt solar panel, can also be powered by conventional electrical tie-in. It is an excellent example of the three R's, Reduce, Reuse and Recycle.

10. Falcon Living Box

20' Shipping Container House Layouts

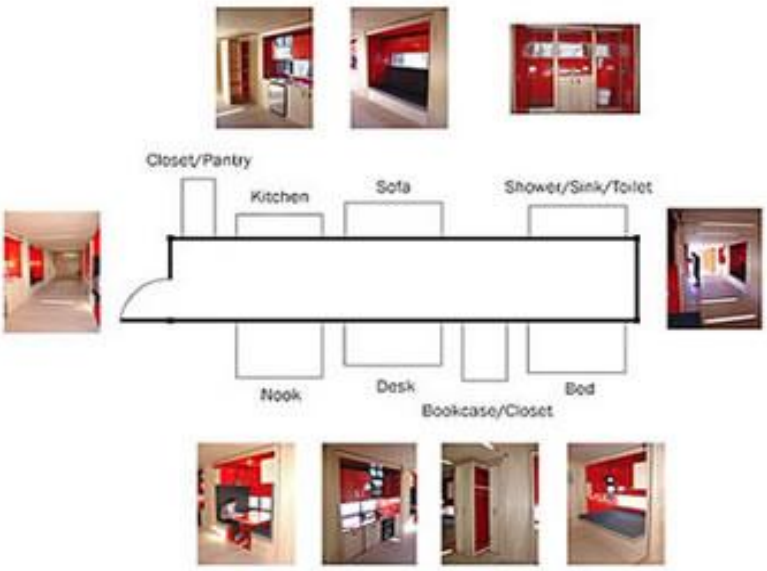
The 20' Bunkhouse design is ideal for a stand alone hunting cabin. This shipping container home sleeps two, has a kitchenette and full bathroom.

40' Shipping Container House Layouts

We've developed several different types of layouts so that you can mix and match the units to fit your needs of your work site. The following layouts can be used as a stand alone shipping container houses with 300 sq ft., or as part of a bigger work camp. They have a sleeping area, kitchen, and fully equipped bathroom.

11. MDU (Mobile Dwelling Units)

all major metropolitan areas. The harbor is a multiple level steel rack, measuring 8 feet in width (t
ength according to the site. Its stretched linear development is generated by the repetition of MD
ators, stairs and all systems (power, data, water, sewage) run vertically along these corridors. A cr
the entire length, on its own tracks. It picks up MDUs as they are driven to the site and loads t
kets support and secure MDUs in their assigned position, where they are plugged-in to connect



13. The All Terrain Cabin (ATC)

PROJECT DETAILS

NAME: All Terrain Cabin
PROJECT LEAD: Bark Design Collective
LOCATION: Canada
START DATE: January 01, 2006
CURRENT PHASE: Construction complete
COST: $38000 USD (Estimated)
SIZE: 160 sq. Ft (14,86 sq. m)
PROJECT TYPE: Residential – 1 BR
BENEFICIARIES: Single individual, couple or family
NUMBER OF BENEFICIARIES: 1

20' ISO container frame , it unfolds rapidly to 480sf of self-contained

A cabin, using the standard ISO shipping container as the basis for the structure and outfitting. The result is as smart as it is efficient, suitable for a family of four and a pet to live off the grid in comfort and contemporary style. It travels by train, truck, ship, airplane or helicopter, folded up and indistinguishable from any ordinary shipping container. Once it arrives, it unfolds rapidly to 480sf (44.6 sq.m) of self-contained, sophisticated living space with all the comforts of home.

http://inhabitat.com/prefab-friday-bark-all-terrain-cabin/all-terrain-cabin-bark-canadian-design-prefab-off-grid/

14. Lake Side Shipping Container House | Cove Park

POSSIBILITA' DI MASCHERAMENTO (**Camouflage)**

Architecture Firm:USM Ltd

Address:Urban Space Management Ltd

The Riverside Building,
Trinity Buoy Wharf,
64 Orchard Place,
London E14 0JW
T:020 7515 7153
F:020 7531 9786
E:email container city

informaion:

- Completed: 2002 and 2006
- Installation time: 3 days
- Architect / Developers: USM Ltd
- Location: Peaton Hill, Argyll & Bute

G84 0PE, Scotland

- Containers used: 6
- Units created: 3
- Use: Creative industries

live / work space

http://www.weatherhaven.com/contact/index.asp
http://www.weatherhaven.com/commercial/products/mecc/index.asp
we are doing a research about the temporary structures and portable homes.

I am mainly interested in your product MECC™ (Patent #5,761,854), which is expandable. I want to kindly request you to provide me the information about this product such as price, drawing and details if possible. Thankyou in Advance. Torabi

Intermodal container:

An intermodal container is a standardized reusable **steel** box used for the safe, efficient and secure storage and movement of materials and products within a global containerized **intermodal freight transport** system.

Lengths of containers: 8-foot (2.438 m) to 56-foot (17.07 m)

Heights of containers: 8-foot (2.438 m) to 9 feet 6 inches (2.9 m)

A typical container has doors fitted at one end, and is constructed of corrugated weathering steel.