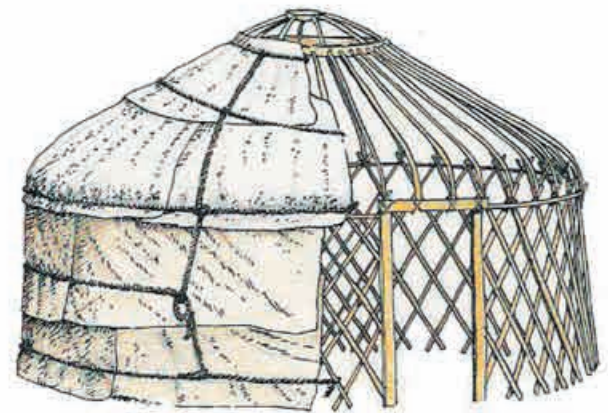


a new
mobile
archtec-
ture

· jonathan enns
· 20096692
· competition elective
· August 19 2006
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The challenges of living in a constantly changing environment, and sustaining oneself in a nomadic lifestyle are ones which we commonly associate with the history books, or the most impoverished of third world nations. Our concept of the static home, reliant on a complex and organized economy, is one which has only developed since the agricultural revolution. However, these challenges that most of our civilization overcame thousands of years ago are still faced today by many in our own advanced nations. Canada, in particular, maintains some of the highest per capita rates of homeless people of any developed nation and estimates of the number of homeless in Toronto alone range from 60,000 to 70,000. The Shelter In A Cart competition, hosted by Design Boom, was an attempt to look for design based solutions to the issue of urban homelessness. Despite a scale of design that resembles product design/or industrial design more than "a library, a museum, a city hall or a house" , John E. Hancock's belief that the influence of past and the continuity of ideas in design strongly holds true for the design of a 'shelter in a cart'. The program and challenges of this design are not new, for thousands of years humans have had to design mobile mechanisms for both shelter and survival. In analyzing the design solution, valuable insights can be gained by studying past systems utilizing the conditions of compactable shelter, and mobile utility. It is by looking to the works of both the near and distant past that we might gain valuable design insight into the production of a new mobile architecture.

For thousands of years, the idea of spatial compactability has been essential to the production of mobile architecture. The ability to expand a system in times of occupancy and compress it in times of transport is intimately linked to the other two issues of mobility and utility. Expandability is heightened by both the use of a component system that can be disassembled and reassembled, and the use of appropriate materials. Today, in remote regions of the Pamir Mountains near the border between Afghanistan and Tadjhikistan, nomadic villages are constructed with a series of dwellings called yurts. "A yurt is a circular tent made of heavy felt or canvas draped over an elaborate framework of willow sticks. Nomadic peoples of central Asia have used yurts for thousands of years as they roam the enormous mountainous area from Iran in the west to Mongolia in the east." The walls which are constructed of a continuous peripheral willow lattice expands to the final form and contract for transportation. Two people can set up a traditional yurt in half an hour, and when packed into its components, it can be carried to the next site by two camels. Second, a more familiar expandable component based typology to North America, the tipi, was used for thousands of years by the Native Americans. The tipi is a frame of wood poles arranged on a tripod or quadripod formation yielding an efficient conical form enclosed by

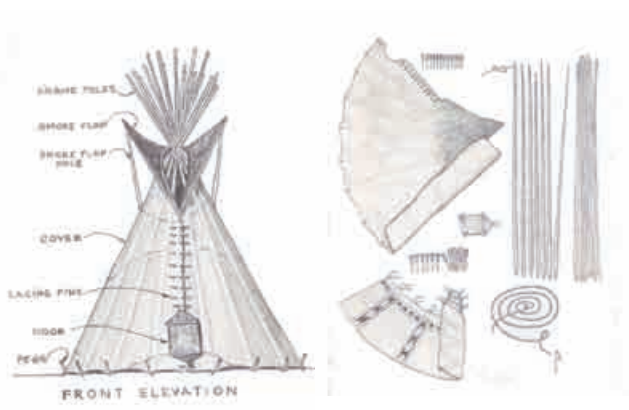


[1] Above, construction of the afghan Yurt. Below, comparison of willow walls during travel (left) and on site (middle). (images: Nicholson)



buffalo hide. The tipi was heavy by modern standards and a 15 lodge pole tipi would weigh around 300 pounds. Erection was possible by two people and when disassembled, the tipi could be carried from site to site in components by horses or dogs. A third and more familiar derivation of these older technologies is the modern tent. The tent itself has a storied and lengthy evolution. Tent structures range in size from traveling event architecture, to more applicable recreational camping and expedition shelter. The tent uses many similar principals to the yurt and tipi, but has made use of technological advances to further its expandability, reduce its weight and increase its material performance. Modern Camping tents can be assembled in five to twenty minutes and a brief look at Mountain Equipment Co Op can yield a tent that weighs as little as 1.1kg and compresses to 11x50 cm. The ability for shelter systems to pack tight for transport is essential to any lifestyle whose base conditions are subject to change. The Cart proposal, image [3], makes use of a similar component based system to optimize spatial flexibility and adaptation. Much like the yurt, it compresses itself when in transport, by packing its components inboard, while at night these can be expanded outboard for increased shelter area. Even modern motor homes make use of the principal of spatial flexibility, and often sport accordion like expandable dining and sleeping spaces that extend from the main form when in use, and recess into the form when in transport. Material advances, at any scale, have allowed the magnitude of spatial flexibility to increase, even within these systems that have used similar structural concepts for thousands of years.

A second consideration in the analysis of a mobile architecture, and one which shaped the core of the design proposal, is the effectiveness of moving systems of utility. How can the object do work? Much like any home, utility lies in a system's capacity for storage. Looking at mobile storage in its purest form can lead to valuable insight in its marriage with shelter. It is not coincidental that the shopping cart is so often seen used by the homeless. Its utility as an instrument of mobile storage is obvious. Much can be learned about the utility of mobile storage and its pertinence to a mobile architecture by studying the evolution of the shopping cart. Although Sylvan Goldman is credited with inventing the shopping cart in the 1930's it wasn't until the 40's that shopping cars acquired most of the features we are familiar with today. The shopping cart was essentially a device invented to increase carrying capacity. The more a customer could carry the more the grocery store could sell. What is useful from a shelter design point, (and perhaps disturbing from a consumerist one) is that it appears that the shopping cart is approaching the maximum feasible size of a human powered vehicle. While the shopping cart is not particularly useful for shelter in itself, it is an effective indication of a useful size,



[2] components of the North American Tipi. (image: Nicholson)



[3] components of the Shelter in a Cart proposal.



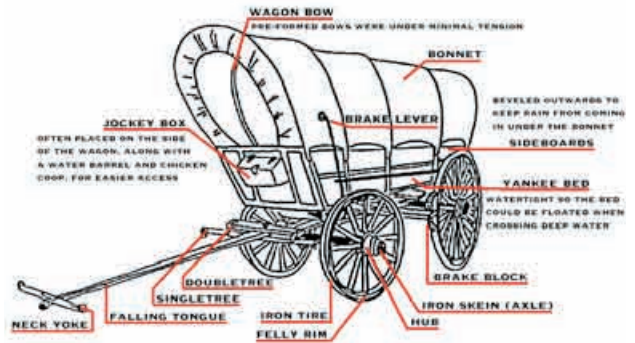
[4] original drawing of a telescope cart by inventor orla e. watson image © archives center, national museum of american history, behring center, smithsonian institution

and a manageable volume, which has evolved through years of market research of trial and error from the handheld metal wire and wicker baskets of the 30's to those we are familiar with today. It is both the volume, and general morphology of the shopping cart that has evidently been used as a template for the design proposal. A full-size modern cart, which sells for about \$100, has a capacity of 6.5 cubic feet, not including the seldom used shelf at the bottom of the chassis. Other devices for moving objects at the human scale pervade our everyday lives, such as the wheelbarrow, the wagon (of which the shopping cart is a descendant) and the wheeled garbage bin, but perhaps none are as flexible in their application, or as useful in their current morphology as the shopping cart, a device for carrying as many random things as one person possibly can.

The final issue that is essential to effective mobile architecture, and was considered at length in the design proposal, is the ease with which movement is achieved. This issue is intimately linked to the system of spatial flexibility and utility, as something that compacts efficiently is often moved easily. Thus this issue represents a marriage of the above mentioned utility and portability. While the tipi and yurts move with the help of large animals and the tent can be carried on foot, both have their drawbacks in terms of speed and range, as they are limited to the capacity and comfort of the carrier. In contrast, the covered wagon or Conestoga wagon is perhaps the icon of historic mobile design, and the method by which the majority of North America was settled. Much like the preference of wheeled shopping carts over handhelds, the wagon's use of large wheels allowed the transfer of loads to the ground through a fabricated structure, rather than the carrier's own. The proposal's large rear wheel can be seen as a biproduct of the same rationelle. The wagons carried all the essential elements for settling, as well as tools for their own repair. They were vehicles of both utility and shelter, allowing transport in the day and shelter at night when they would be slept under or within. The practical design allowed effective travel through desert, mountain, grass, and water, as their bodies and wheels could be disassembled to float them across rivers and streams. Their popularity and prevalence as effective movers during this time lead to their nickname as 'ships of inland commerce'. Each cart contained the needed essentials for a traveling family, even in the harsh unsettled lands of the North American wilderness, and allowed for our population's successful dispersal across a massive continent. Various other mobile icons have arisen in the covered wagon's bloodline more recently, such as Volkswagen's Eurovan, or Airstream's Silver Bullet trailer homes with similar intents of effective mobility and integrated storage utility, however, perhaps the covered wagon is the ultimate icon due to its conditions of use, its absolute versatility



[5] Today's plastic shopping cart. (image: Design Boom)



[6] Covered Wagon diagram. (image: Oregon Trail) <http://www.endoftheoregontrail.org/wagons.html>



[7] Airstream's Silver Bullet. (image: Google image search)

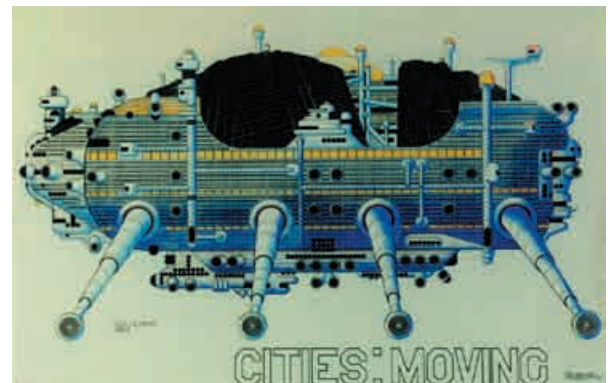


and its impressive mobility in an age of human and animal power. While the tipis, and yurts are purely shelter when assembled and baggage while disassembled, and the shopping cart is purely storage, the type of movable systems that the covered wagon, the Euro van and the Silver bullet represent attempt to marry solutions to both storage and utility. While the beauty of the tent is its lightness and portability, that of the covered wagon is its multiplicity of use. The covered wagons features essentially allow it to become a tachenvelt (a world in its own). The use of an adaptable component based storage system in the design proposal, allows seemingly endless transformation options and adaptability, striving in a similar way in its multiplicity of use, whilst allow efficient and effective move-ability.

Thus, in conclusion, it is inevitable that any new mobile architecture will look to examples of the past for inspiration and enlightenment. The proposal for this competition benefits particularly from ideas of compact-ability, transformation, and multiplicity of use found in many shelter and storage systems of the past. With regard to the urban homeless, it is doubtful that a design solution alone will be of much aid for the problem in Canada. Devoid of political will and social awareness, any objective aesthetic fantasy falls far short of a viable solution. However, the competition has benefited the issue in that it is a point of discussion, observation, and perhaps insight. The issue of the shopping cart is interesting itself, in that it's evolution informs us greatly about the increase in wealth division in our country, when thousands of homeless can now fit a life into the cart size that holds a weekly amount of food for the average family. It is inspiring to think of mobile architecture as a solution for not only the homeless, but everyone in society. Architectural history is littered with plans of mobile architecture, from Archigram's utopian schemes to Office of Mobile Design and Atelier Van Lieshout (to name a very few). Although we still have rooted homes, not since pre agricultural times have individuals been so mobile. Perhaps the Tipi, Yurt and covered wagon are realigning themselves with today's current lifestyle and environmental predicament, and can inform an altered typology for the masses, one that is tailored to rest lightly upon the land to facilitate the spatial fluidity of today's modern world.



[8] Above: Atelier Van Lieshout's Mobile Architecture. (images: <http://www.ateliervanlieshout.com/>)



[8] Above: Archigram's mobile architecture. (image: www.ab-pr.com/.../G%20Galeri/Archigram/08.jpg/)

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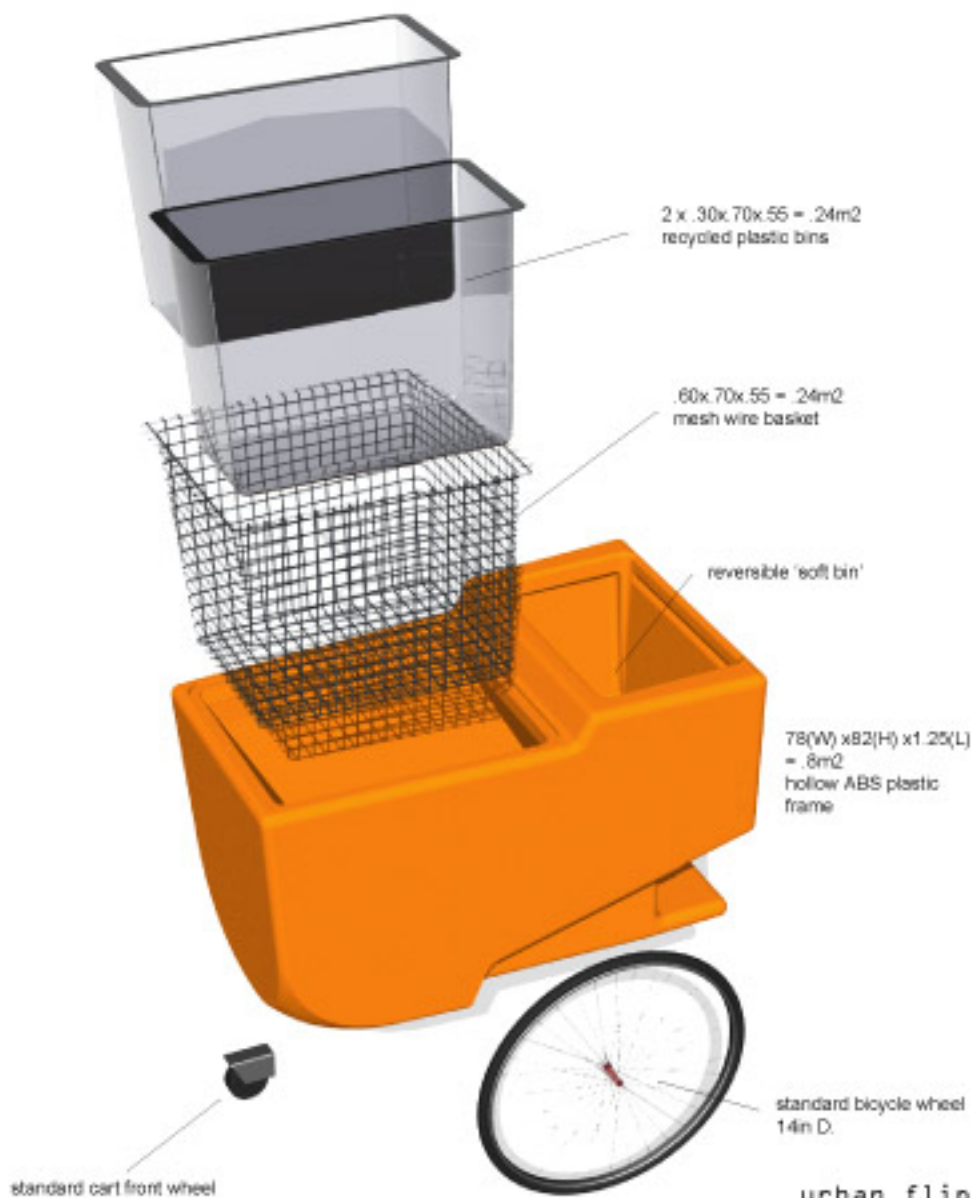
urban flip >,<art

URBAN FLIP KART

The Flip Kart is intended to be an effective and affordable answer to improving the living standards of the urban homeless. Its function is one that both balances and maximizes the parameters of capacity, mobility, and shelter.

The Flip Kart's conception is one based on flexibility and transformation. The Kart's utilization as a vehicle of collection and delivery is achieved by the use of a soft bin (close to the rear) and a set of nesting hard bins (an inner set of plastic bins that fit within an outer metal mesh bin).

While these bins are chosen largely for reasons of practicality, they also serve as sheltering material. When shelter is needed, the Kart can be rotated back on its wheels and its once inward oriented containers inverted, so that what in the day was capacity for collection and delivery, is at night a space for shelter and protection. The Flip Kart's conception attempts to provide a framework within which to efficiently improve the living standards of the urban homeless, while providing them with a more effective interaction with the rest of society.

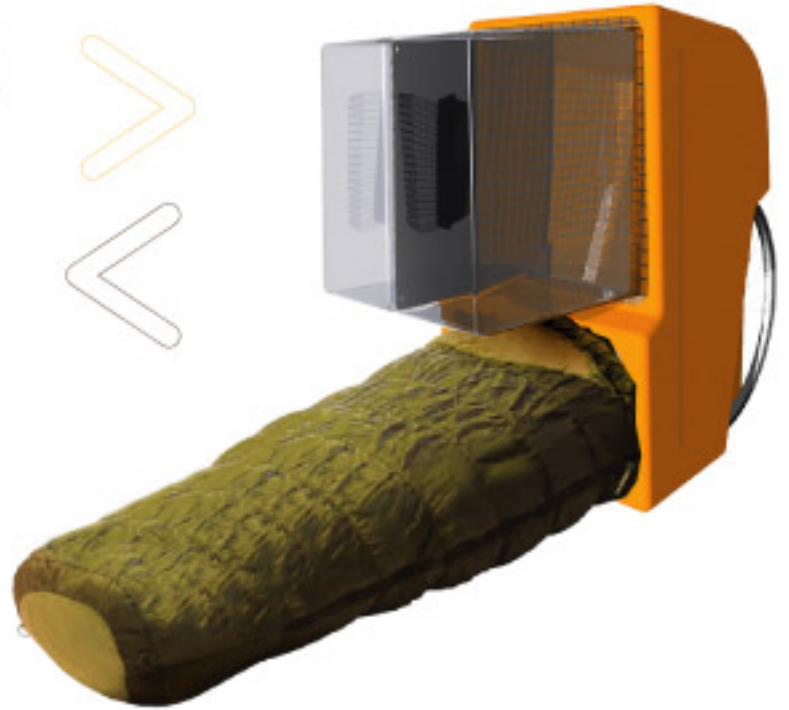


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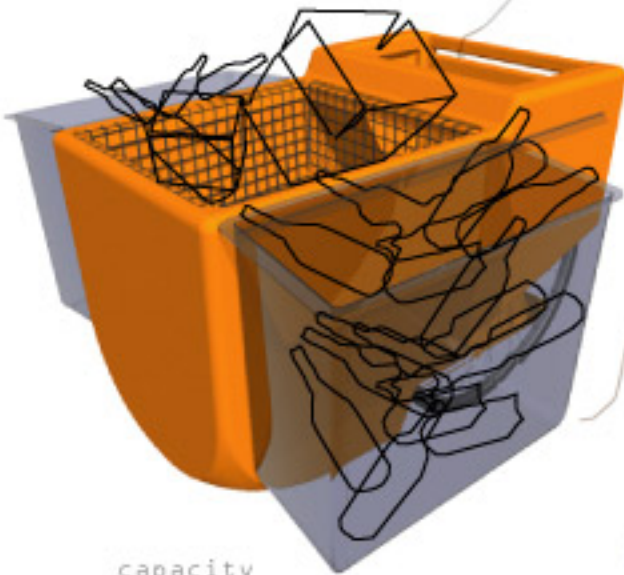
mobility



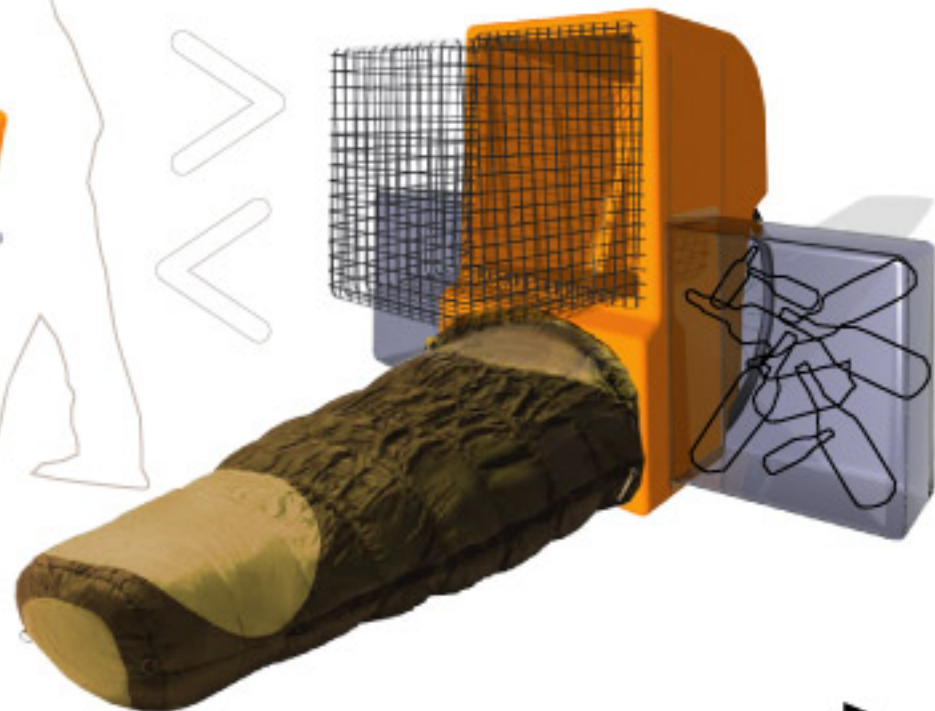
insulation and protection



storage and ventilation

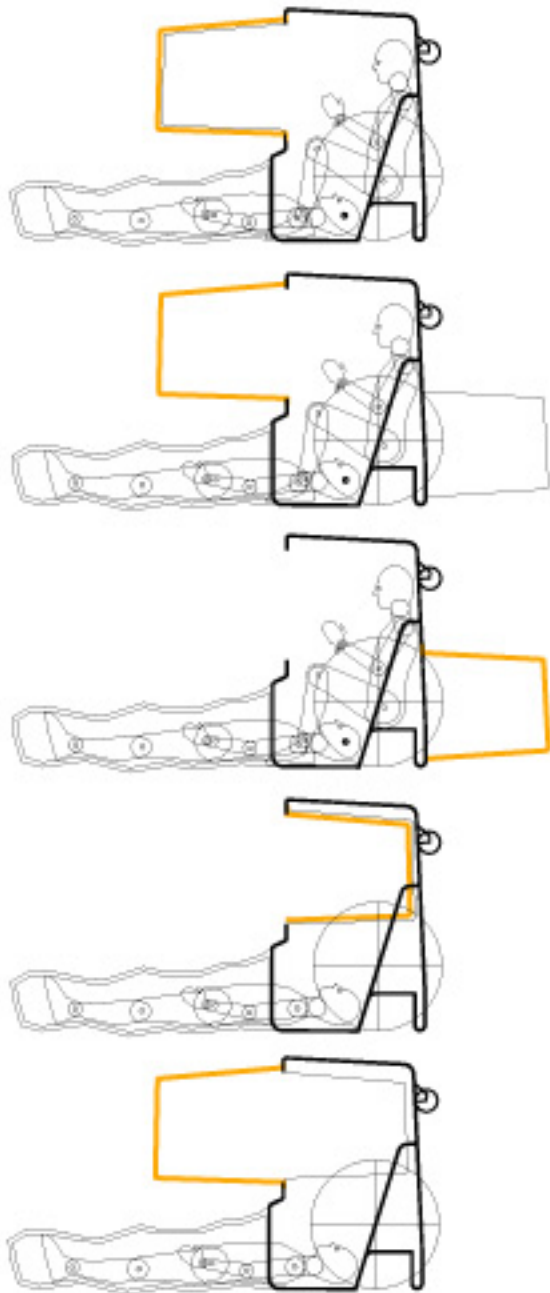


capacity



urban flip cart >> mobility & shelter





place over street venting to heat interior

