

micro
architecture

Thames & Hudson

richard horden

Project

Tree Tent,
2002–03

Location

Forest (mobile)

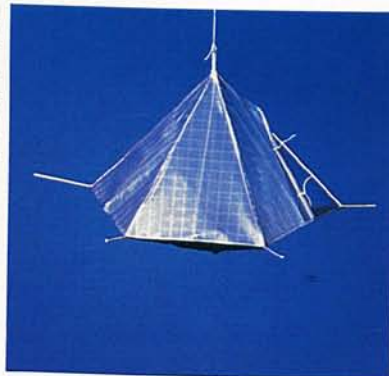
Students

Ralf Drewing
Petra Liedl
Richard Schindler
Markus Vogl

Teaching Team Prof. Richard Horden
Claudia Pöppel

tree tent

This topic has always generated great energy at our micro architecture classes at the TU Munich. We start with a briefing for a tree house that can be light enough to be carried into a forest and unfolded and lifted into the tree using a rope over a branch without damage to flora or fauna. The target weight limit is normally set to whatever can be carried by one or two people, around 26kg maximum. Our optimum solution to date is the 'tree-brella'. This is a large inverted, 2.6m-diameter, umbrella that can be hoisted, point upwards, into the tree while folded tightly to avoid damage to, or snagging on, branches. When the 'tree-brella' reaches its height limit close to the host branch, the rope, which trails from the lower umbrella 'handle', can be pulled to open up the canopy above and the textile floor below. Two full-size tree-brellas have been built by our teams and the idea has expanded in recent studies to larger, 6m-diameter versions for giant tree-canopy exploration in remote regions.





Project Location Munich, 1998
National Park
Bavarian Forest

Students Julia Haas
Andreas Kienle

Teaching Team Prof. Richard Horden
Eva Neumeyer
Andreas Vogler

Consultant Vilsmaier Metallbau,
Pfarrkofen

Sponsoring Krah Seilsicherungen,
Garmisch-Partenkirchen
Vilsmaier Metallbau,
Pfarrkofen
W. Junge Sportartikelmarketing,
Witten
MTH Zeltbau, Schechingen
Ploch Segelmacherei, Munich

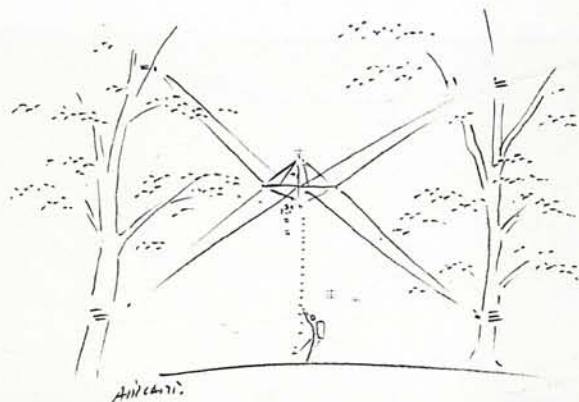
Materials Aluminium, Rip-stop Nylon

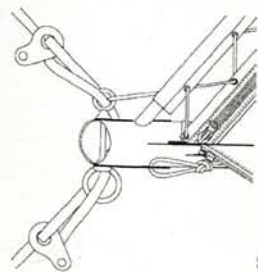
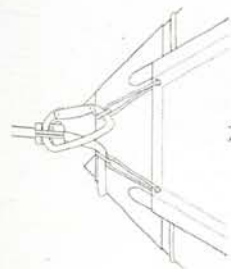
Dimensions 1.8 x 1.8 x 1.4m

Weight 15kg

air camp

'Air camp' was designed as an observation point for a wildlife sanctuary in the Bavarian Forest. This modern tree house provides protection from animals in the park and can be used as a platform for wildlife photographers or for campers. In its dismantled state, 'air camp' can be carried in a rucksack by a single person and assembled with a minimum of effort. The platform consists of a square frame of aluminium tubes, between which a fabric base is spanned. It is braced by a three-dimensional structure of aluminium rods that also form a supporting framework for the tent skin. Details and materials are based on high-tech developments in mountaineering equipment and hang-gliders. 'Air camp' was presented to a broader public at the 'European outdoor fair 98' in Friedrichshafen and at the 'Caravan Salon 98' in Düsseldorf.





Student Andreas
Kienle high up in
the tree tops.



**Project
Location
Students**

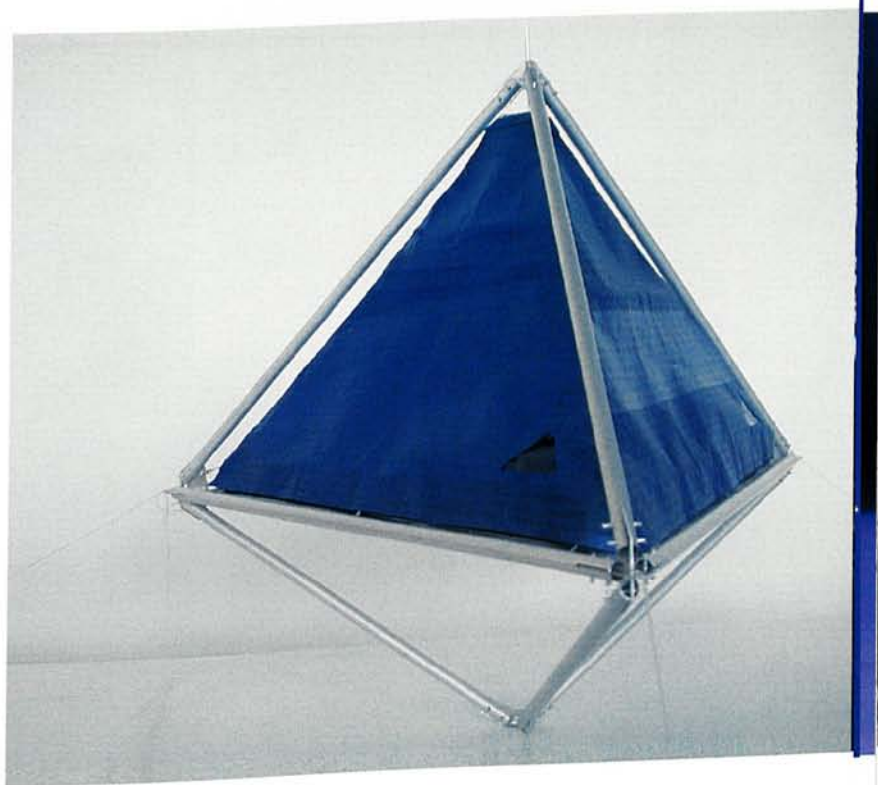
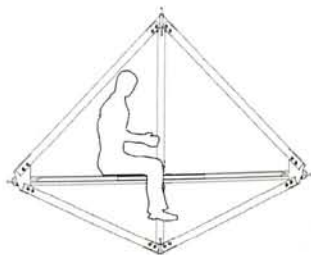
Munich, 2001
Munich (mobile)
Tillmann Kühnel
Moritz Mungenast
Klaus Puchta

Teaching Team Prof. Richard Horden
Thomas Straub

one kilo house

The aim of our project was to design an emergency shelter for one person with some baggage. It should offer protection against extreme weather, a basic possibility of retreat and a sleeping place. It could function as a dignified location for homeless people or for people who need to live in a city temporarily without a fixed residence of their own. We developed a modular system consisting of an aluminium-rod construction with a fixed floor panel and a tent that can be attached to it. Depending on demand, the framework might be installed by the city or by a private organization for a longer period of time. Sanitary and technical care would be provided by public facilities located nearby. The design offers possibilities for other uses, such as playground shelters for children or as a platform for people enjoying the sun. During the day the tent can be folded into a triangular backpack containing a person's essential, individual property. In the evening it can be easily set up again by connecting it to the tube structure by small hooks.





**Project
Location
Students**

Munich, 2002–05
Europe
V. Blacker-Sturm,
V. Gruber,
C. Hainzmeier,
S. Koch, B. Matern,
D. Oswald, M. Penev,
T. Tuhkanen

Teaching Team

Prof. Richard Horden
Burkhard Franke
Lydia Haack
Hendrik Müller
Andreas Vogler
Tim Wessbecher
Walter Klasz

Concept and development: TU Munich, Institute Prof. Richard Horden
European and USA patents: Richard Horden

micro
compact
home
[m-ch]

Elements of modern aircraft interiors have advanced our awareness of quality in compact personal spaces: indirect lighting and directed ventilation, integrated flat-screen displays, internet and mobile phone connectivity from 30,000 feet, carefully designed and scaled lightweight crockery and cutlery and, from the best airlines, fine food preparation and presentation. The aim of the 'micro compact home' and other projects in this group is to bring this concept of high-level products and experiences in a compact environment to earth. The built product is enhanced by the advantages of production in an exceptional family-owned factory in rural Austria. Here the components are fabricated in a clean, sheltered facility with automated quality control that ensures precision in each element. Small-scale foundations and services are prepared on site in parallel with the production process in the factory. When this work is complete it takes just five minutes to install a 'micro compact home'.





micro
compact
home
[m-ch]

Daily life has been transformed by the arrival of technologies such as the internet, flat-screen television, and wireless phones as well as by improvements in domestic appliances like microwave ovens, fridge freezers and LED lights. In addition, building technologies are advancing in the wake of the aerospace, marine and auto industries, enabling new opportunities for living spaces with higher performance and less material. It is now possible to live much better on a much smaller scale. The storage of books was once an essential part of learning or research, and the ownership of objects and rooms to store them an essential expression of wealth. Today we acquire knowledge from the internet and wealth is expressed by a high degree of physical and intellectual mobility. The luxury is in the compact technologies that allow us the greatest freedom of movement. We can now touch and be touched by the world from a tiny space. The 'm-ch' is both luxury and necessity on a small scale, a high-quality home space for short-stay living.

- two compact double beds
- sitting area
- sliding table for work, meetings, dining
- dining space for up to five
- shower
- toilet cubicle
- kitchen area
- fridge and freezer unit
- microwave
- three-bin waste
- double induction hob
- sink and extending tap
- heating
- hot water
- air conditioning
- two flat-screen televisions
- LED lighting
- power sockets
- internet EDV socket
- television aerial socket
- telephone socket
- two mirrors
- shirt cupboard
- storage
- ski store option
- terrace option
- solar cells option



AL



AL



SK

interior

Windows and LED light fittings are positioned to wash work surfaces with light while avoiding the downward glare cast by overhead fixtures. This gives a sense of greater width and overall volume to the spaces. High quality Swiss fittings are used in the kitchen and shower zones with flush units and a minimum of protruding elements to keep the compact space free for movement. The specially selected LED lights cast a warm, natural-like light in the interior avoiding the usual mismatch between daylight and tungsten interior lighting and helping to give a more expansive feeling to the interior by blending with the outdoors.





construction The 'micro compact home' is constructed with a timber frame and panel construction using recyclable and durable flat aluminium cladding. Vacuum insulation is used within the roof composite not only for its thermal efficiency, but to minimize weight. The 'micro compact home' has minimal impact on the environment. Following installation of the support frame onto micro piles the 'm-ch' is crane-installed within five minutes from truck or trailer. Commissioning occurs after connecting the micro compact home to service points. Crane installation allows the 'm-ch' to be positioned with care close to and between trees and within other environmentally sensitive landscapes.



USES

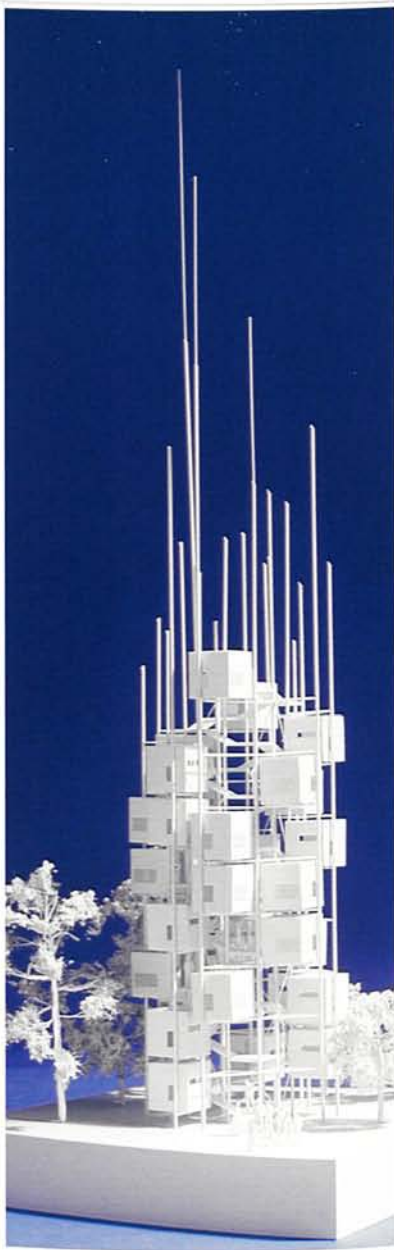
Micro-home villages can be custom-built for sports and leisure while preserving the natural landscape below and around the cubes. They are ideal for skiing or sailing holidays, for yacht clubs needing accommodation for racing crews, for press accommodation at sports and Olympic events, as clusters of mountain huts or for art galleries requiring short-stay space for guest artists, as an urban pied à terre for companies needing visiting staff facilities, for students at universities and boarding schools, for hospital staff or visitors, for trucking companies or airlines needing temporary facilities for returning crews, for short-stay living spaces, for building-site managers and consultants, for teenagers away from home and starter homes for young people who fill their 24-hour day with work and leisure and have minimal domestic requirements. The 'micro compact home' is quality architecture that fulfills a need between permanent and mobile construction, a need between home and hotel, between study and leisure, function and fun.





tree village

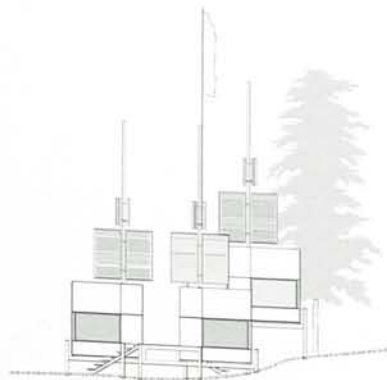
Designed primarily for well-landscaped areas for student housing and for business-related pied à terres on tight city sites, the tree village is a vertical arrangement of 'micro compact homes' planned on a minimal 12-m footprint. Its structure is made up of a cluster of structural steel vertical columns or 'reeds' that echo the surrounding natural vertical architecture. This provides an evenly distributed load which reduces the size of foundations and disturbance to tree roots and vegetation. The open central space contains a lift shaft and stairway and supports for 30 micro compact homes. These are serviced with power, water and waste from an internal ring of more vertical 'reeds'. The 'micro compact homes' are arranged around the lift and stair core so as to provide maximum transparency and openness for natural light/views to penetrate the space. A 'micro compact home' can be removed from the tree village by a light crane for maintenance at the production centre without disturbance to the adjacent units.



EO



snowboard village



The 'micro compact homes' are raised above the ground providing natural space and airflow between the cube and the ground surface, minimizing foundation disturbance and touching the earth lightly.

The aluminium sub-frames have three legs which are height adjustable to enable the micro homes to be located horizontally on the mountainside. After securing the sub-frame to the slope, the 1.8-tonne micro compact homes are lifted by crane over trees or shrubs. A lighter weight 1.4-tonne unit is available and designed with lifting points for helicopter delivery to remote sites. Space below the 'm-ch' allows the natural landfall and ground surface to be uninterrupted and illuminated at night from the LED light fittings located flush with the underside.

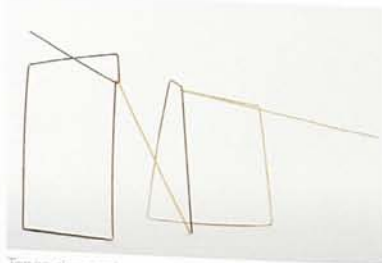
Clean energy for the snowboard village can be provided using solar panels and vertical-axis wind generators. These are mounted on the mast and roof. There is the option of glass-fronted clip-on micro wood-burning stoves that can provide a natural warmth and aroma to

enhance the intimate atmosphere inside the home. A storage frame for small logs can be attached to the underside of the cube, as can lockable aluminium containers for skis and snowboards etc., so that nothing clutters the ground and snow surface.





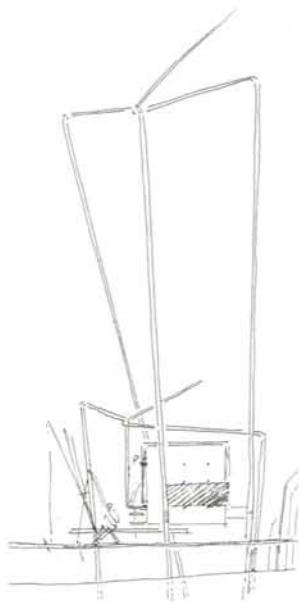
1W

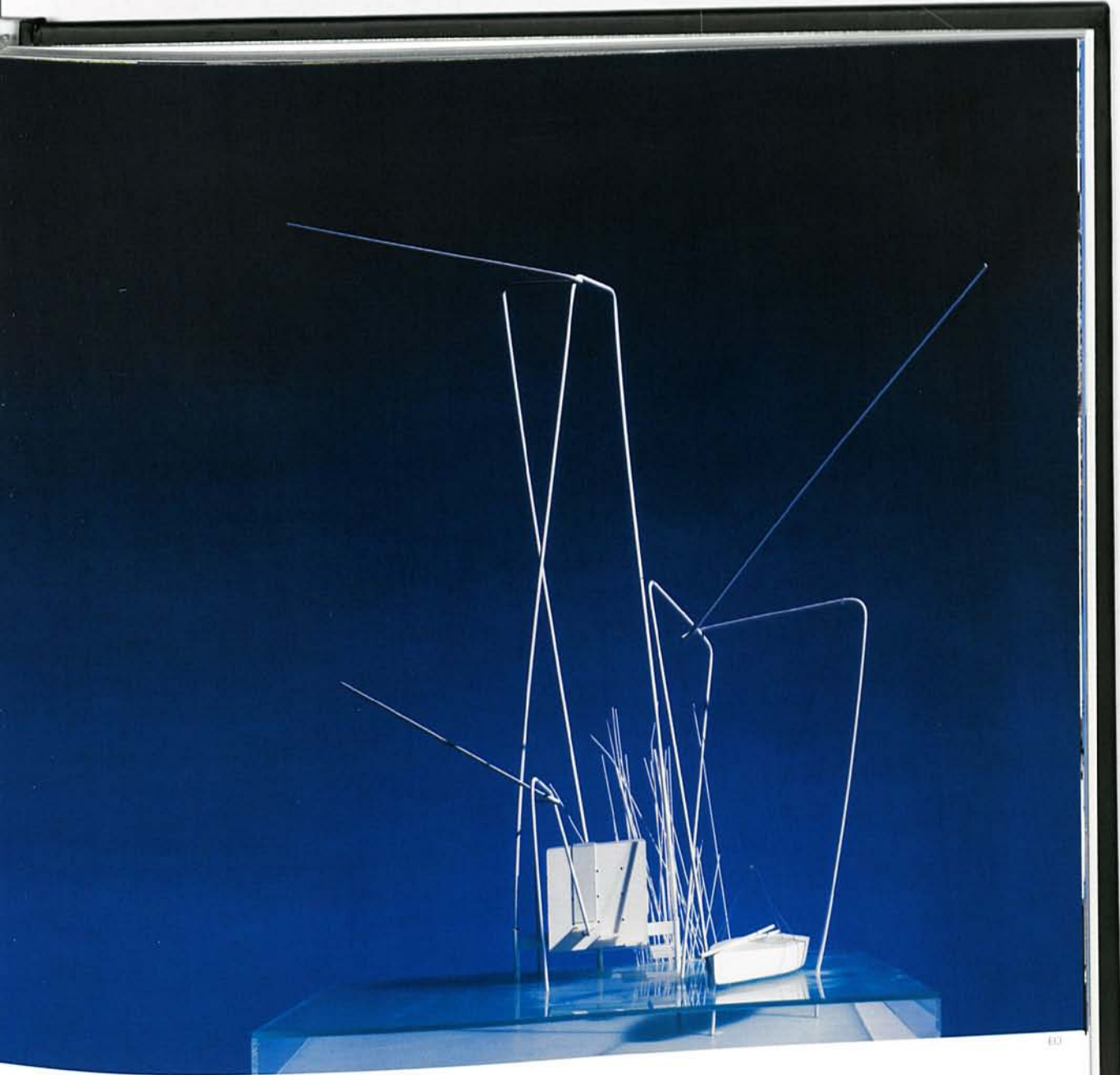


'Tango dancers' maquettes by Marijke de Goeij

reed huis

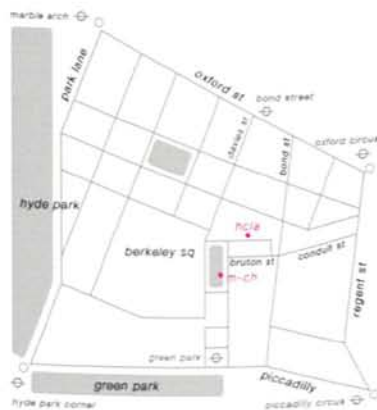
The 'reed huis' project is conceived as a small weekend retreat for two, a 'nest in the reeds'. It was developed specifically for the Dutch polder, canal and lakeside landscapes. It was designed in May 2003 by the celebrated Dutch artist Marijke de Goeij working with Richard Horden. The tall, reeded sculptures, a development of de Goeij's wire maquettes, would be formed with white-painted aluminium tubing and provide a stable three-point support for the 1.8-ton 'micro compact home', creating a 'high-tech nest'. The bent top shape echoes the natural form of windblown reeds. The reeds also provide an identity, like the traditional white bridges or windmills, in the planar Dutch landscape. They function as a support for solar energy panels and wind generator and may be gently illuminated at night with light tubing or up-lights. A second sculptural reed frame provides a light lifting gantry for a small yacht or dinghy, which is pulled clear of the water when not in use.





UK 009

In June 2006 the micro compact home 009 was presented for the first time in Great Britain. Centre of the event was Berkeley Square in London, only a stone's throw from the offices of Horden Cherry Lee. The aim was to give potential buyers and property developers the opportunity to experience 'living in the cube' first hand. The same model has also travelled to Manchester and to several other countries such as Austria for the famous downhill skiing event at Kitzbühel and Switzerland on special commissions for UBS.





DC

UK 009

The 'micro compact home' is especially designed for 'short-stay smart living'. As a sophisticated, compact accommodation for business or leisure use it is suitable for various locations. Integrated in the smart aluminium cube are sound system, LCD screen, telecommunication and an energy system as well as furniture. The reduced volume of the building creates a fusion with the scale of natural plants and the experience from inside a micro compact home looking out is of a calm compatibility with nature.





Project
Location
Client
Students

Munich, 2005
Munich
Studentenwerk,
München e.v.
V. Blacker-Sturm, V.
Gruber, C. Hainzmeier,
S. Koch, B. Matern,
D. Oswald, M. Penev,
T. Tuhkanen

Teaching Team

Prof. Richard Horden
B. Franke, L. Haack,
H. Müller, A. Vogler,
T. Wessbecher, W. Klasz
Horden Cherry Lee, London
Haack + Höpfner, Munich
micro compact home
production GmbH

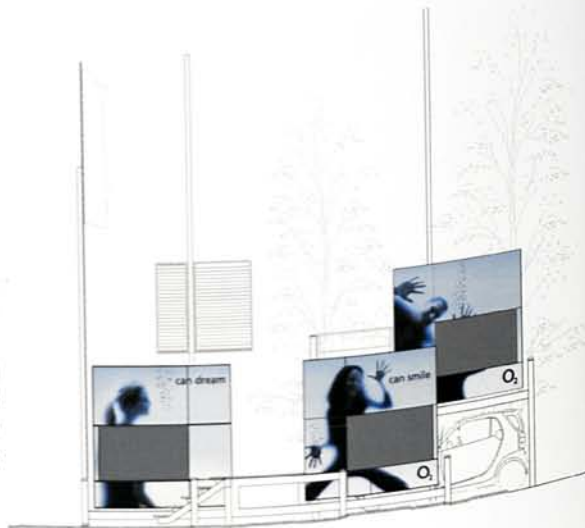
Architects

Contractor

Concept and development: TU Munich, Institute Prof. Richard Horden
European and USA patents: Richard Horden

O₂ village

The first community project of seven micro compact homes was sponsored by O₂ Germany and Siemens for the Studentenwerk, the student housing authority in Munich chaired by Dieter Massberg. The design of the prototype 001 and O₂ village was drawn and supervised by Richard Horden. Architects for the project were Horden Cherry Lee, London, and Haack + Höpfner, Munich. The project was built by the family contractor, Gatterbauer at Uttendorf in Austria. The 'micro compact home' units are arranged along a central walkway raised 50cm above the surrounding lawn and tree landscape. The spaces between the units are the same volume as a single 'micro compact home' and create the feeling of a personal garden outside each unit. The students use these spaces for barbecue parties in summer and for cooking hot chestnuts and *Glühwein* (mulled wine) at Christmas. In winter the snow is illuminated by the time-set lights below the m-ch units.





Project
Location
Team

Munich, 2008
 Central Europe
 Prof. Richard Horden
 Tim Wessbecher

family
 compact
 home 01

In 1990 the office in London developed a modular factory-built housing system titled 'skydeck house' with contractors; this was followed in 1999 by the 'city arcade', a project for urban living based on a seven-floor factory-built system with micro habitation units on the roof. The project was designed for the Architecture Foundation Competition 'Living in the City'. At the TU Munich in 2000 a small prefabricated home design was developed by students and known as the 'smart™ home'. There followed a similar project known as the 'starter home' for young families by students. In 2005 we started a collaboration with the TU Delft for an e-ch 'European Concept House', a project still under development by Prof. Mick Eeckhout and Andreas Vogler working in the Netherlands. In 2001 we began the design of 'Tokyo 26'/the 'i-home' later to be called the 'micro compact home'. That unit is now being used as the basis for an exploration of a system for a multi-unit living structure, the family compact home: f-ch.



PH



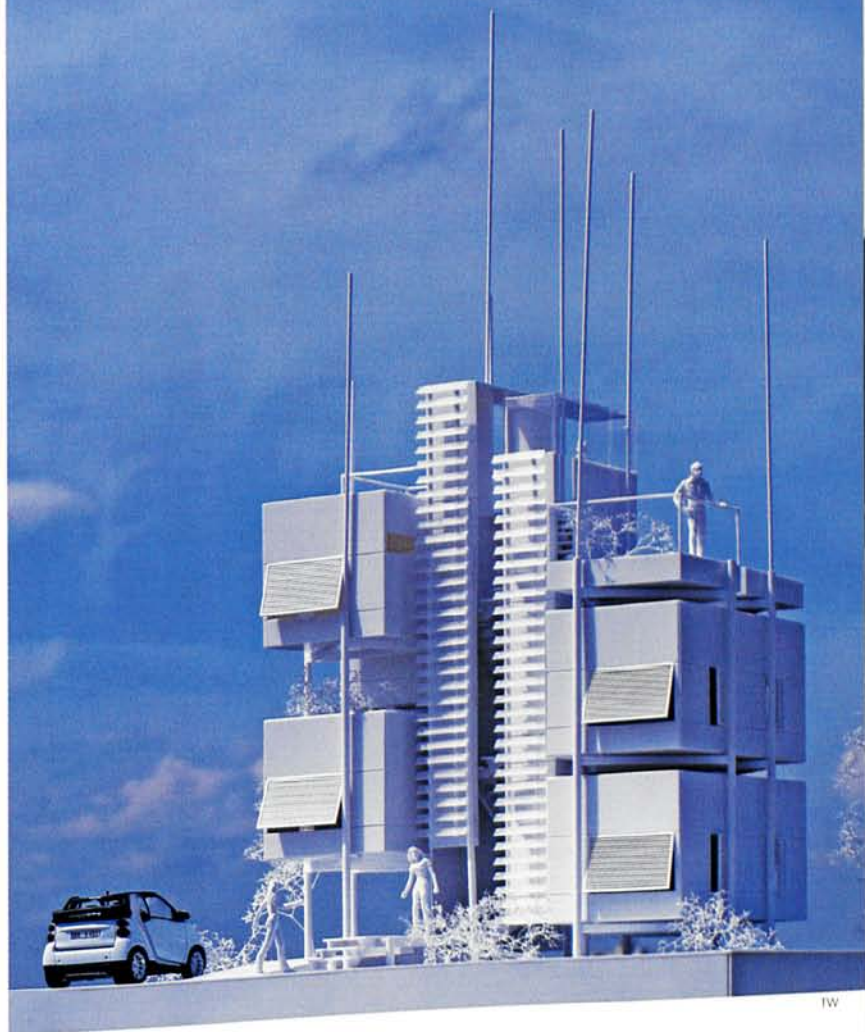
ONE PERSON H-CH.



TWO PERSON F-CH



FAMILY COMPACT HOME 2+2



1W