

# Solar Decathlon Europe'14

## Innovation potentials

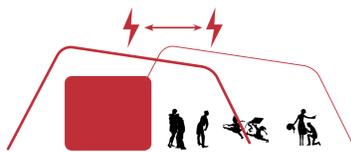
### #1: Densification

In order to counteract expected increase in population of cities such as Copenhagen (with 19% over the next ten years) densification is one of the main FOLD 2 requirements. FOLD 2 allows for building on surplus land or on top of buildings with lightweight, movable and prefabricated buildings.



### #2: Sharing

Modern-day customers desire more; more functions, spaces and resources. Through sharing FOLD 2 optimises the use of functions and areas. FOLD 2 gives an idea of how to share and manage resources as much as possible without major investments, expenses or deprivation.



### #4: Usability

Control of even simple installations in dwellings is problematic for residents. New user-friendly control systems and user interfaces are introduced for technical devices to facilitate better communication between user and the technical devices in the building. The user interfaces involve visualisations and competitive aspects.

### #5: Affordability, transportation and mobility

The emigration from cities by those in the low to middle income class is counteracted by FOLD 2 providing affordable and comfortable living suitable for the urban environment.

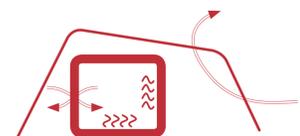
### #7: Producing

Traditional dwellings are dependant on external energy production with high and fluctuating energy prices. FOLD 2 produces more energy than it consumes through the integration of photovoltaic-thermal panels into the solar envelope. Moreover it produces food and provides usable space.



### #8: Consuming

Traditional homes consume an excess of resources such as space, energy and products. Besides passive measures, such as sufficient insulation, FOLD 2 uses active systems such as hydronic cooling system to reduce the energy consumption. The hydronic system is combined with phase change materials in order to provide an effective and energy-efficient thermal environment. Additionally, a hybrid ventilation concept reduces the energy consumption.



Impression of FOLD 2 A comfortable living solution for the individual in a vibrant society

### #3: Single housing

39% of people choose to live alone, yet no specific housing exists for the young, single and elderly. FOLD 2 provides comfortable and flexible 50 m<sup>2</sup> living space for the single person.



### #6: Splitting envelopes

The building envelope includes numerous risks of building damage during construction and operation phase due complicated functional properties. The splitting of the envelopes simplifies the building envelope in relation to functionality, energy and HVAC since each can be specified for specific climatic zones.

### #9: Prefabricating

The construction of room-sized components provides economic and qualitative advantages. Yet, room sizes are limited for optimum transport. FOLD 2 implements a component-based construction system which allows for easy, safe and cheap assembly without scaffolding.