

**ODOO**  
PROJECT



# ARCHITECTURAL BRIEF REPORT

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Decathletes

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## MAIN GOALS

Our goal was to design a house, where as much time as possible can be spent outdoors leading a new sustainable way of life. We created the possibility that the indoor activities could be carried out at the greatest level of comfort outdoors too to create an intensively used outside living space. We designed outside functional units; summer kitchen, dining room, sitting and resting areas and we provide adequate lighting and shading as well.

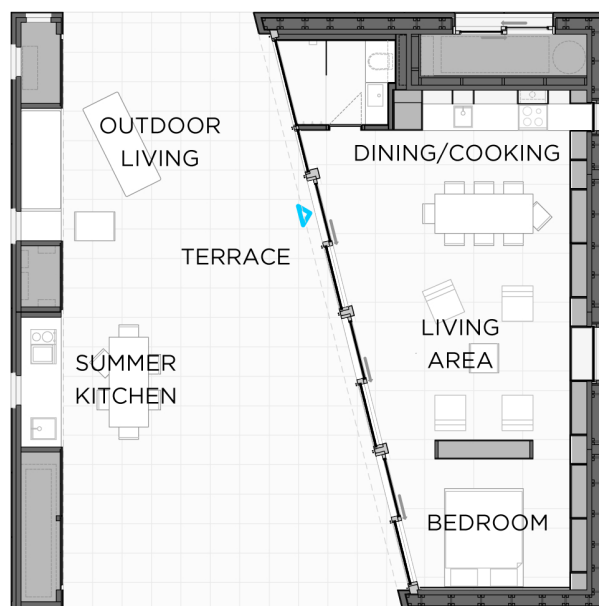
Our goal was to design a house with an easily recognizable character. We believe that especially in our region only an easily identifiable, iconic building can call people's attention to the need of lifestyle change and helps the spread of renewable technologies on the market. Since the building will be presented to the widest possible audience, an important goal was define the Odoos not only as a residential building but an easily presentable pavilion as well.

We are aiming for the best possible use of solar energy. The building geometry is ideally optimized for both active and passive solar energy utilization. It was important for us to integrate the solar panels to the structural system and architectural character of the house as closely as possible. We were focusing on the passive solar design and the energy-efficiency criteria.

We made sure that any materials, products that build up the house, meet the technology needs and have the smallest possible ecological footprint at the same time. Wherever possible, we tried to use local materials and products.

## GEOMETRY

The main design goals of outdoor living, ideal utilization of solar energy, and easy presentation together determined the geometry of the house.



## CONDITIONED RESIDENTIAL UNIT

The house has three main components. The conditioned residential unit contains all the functionality required by the SDE Rules: bedroom, living room, kitchen, bathroom and a mechanical room accessible from the outside. It has the minimum area of indoor living space allowed in the competition.

## TERRACE

An intensively used outer living space surrounded by the conditioned living unit, and the summer wall, the terrace is defined by the hosting of two functional units: the summer kitchen and the rest area.

## SUMMER WALL

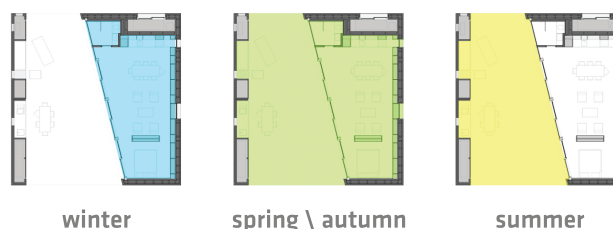
It is a unique, innovative component of the Odoos, which hosts a number of different features. It designates the space of the terrace, and incorporates the summer kitchen and resting area. It is covered by solar panels on the southern side and contains mechanical boxes as well.

## NEW LIFESTYLE

In Odooproject we try to offer a new alternative framework with the help of our house for a more sustainable, healthier lifestyle. We wanted to design a house, where we can spend as much time under the open sky as possible. A house, in which we can develop an intensive contact with our environment, where the orbit of the sun, the weather and the change of the seasons are determining the rhythm of our personal life as well. We wanted to design a small house to save energy and materials, and an intensively used outdoor living area, to provide as spacious living area as possible.

The major novelty of the Odooproject lies in the concept of innovative use of space. Every activity can be carried out inside and outside as well. We avoided the mechanical copy of indoor spaces when we designed the exterior living area as it is impossible to create the same conditions inside and outside. We always tried to offer a new experience, to exploit the possibilities of outdoor living.

The spaces of the house are used in different intensities in different seasons as it was normal even in the traditional Hungarian lifestyle. We spend most of our winter in the heated house and we mostly stay on the terrace in summer. The spring and autumn



transition periods or on the summer evenings when the weather permits, two parts of the space will be indeed a common area by opening the sliding doors.

## SUMMER KITCHEN

The summer kitchen reflects the combination of modern and traditional way of life the most clearly. Everything that may be required for daily cooking can be found here. There are taps and sink, a comfortable surface, storage space for the vessels and stocks, selective garbage collector bins and electricity. The induction cooktop and stove play an important role, because they serve as a base for preparing diverse dishes. Many household appliances - for example the fridge, oven, dishwasher - can only be found inside. It would be a waste of resources doubling them. The dining table can be pulled on the terrace from under the kitchen surface with a single move.



## RESTING AREA

The resting area is a little nook where you can find retreat, or just use the furniture on the terrace. A pull-out bench and small table, custom designed convertible armchairs are contained and a power outlet for a laptop or tape recorder. The elongated grid openings provide natural ventilation just like in the summer kitchen.

## FLEXIBLE USE OF SPACE

The external and internal living spaces are formed along the same concept. We have created spaces free of walls or other immobile elements, which can be manipulated by mobile and flexible built-in furniture, lighting and shading to ensure the flexible use of space.

Great advantage of open spaces that Odoo doesn't not only serve as a dwelling but also performs very well as an exhibition pavilion. After the contest, the building can be used to accommodate various new features. The accommodation of variable features significantly extend the lifespan of Odoo, and thus we create a more sustainable building.

## SHADING

At the design of the house's shading our goals were the optimal sun-protection of the interior, the regulation of light during the whole year, and the shading of the terrace during the summer.

In front of our glass façade a vertical external shading system is installed. This is a fully automated system, with which the users can control the amount of light entering the house. We decided to use fabric shade surfaces. In the summer, fixed solar shading sails can be mounted over the terrace. It is a simple, durable, aesthetically

pleasant solution, besides it can be quickly mounted and dismantled. The vertical and horizontal shading together protect the house even in the warmest weather.

## ARTIFICIAL LIGHTING

We built our lighting system on LED technology, because it is the best choice regarding energy efficiency and it have a great potential of further development in the future.

Our goal is to create a compact lighting system, which allows flexible usage. We want to use lights for defining different spaces and moods for different functions in the Odoo. To achieve this we use different types of light sources in the living space: General lighting, highlights and functional lighting. We designed a completely integrated lighting system recessed to the ceiling and combined retrofit solutions with integrated led strips.

## INTEGRATION OF PHOTOVOLTAICS

Rather than being merely a technological accessory mounted to the roof, the solar panels on the Odoo become dominant aesthetic and architectural elements defining the appearance of the our house. The surfaces of the house are covered with black board cladding with similar color and dimensional coordination to the PV panels.



The integration of solar panels are not just an aesthetic issue. The PV modules are mounted as a complete façade and roof cladding elements, substituting the normal covering of the house's surfaces.

## BEST USE OF SOLAR ENERGY

The building's primary energy-producing area is the roof, which was covered with mono-crystalline solar cells. Because of the the six-degree slope of the roof it is especially efficient in producing electricity in the summer.

The summer wall also plays an important role in the energy production af the house. The active solar surfaces facing south were doubled by the creation of the summer wall, so we have the possibility to exploit the heat gains through the southern façade of the house and the solar cells of the southern side of the summer wall. The vertical wall solar panels produce energy mainly in winter complementing perfectly the roof panels.

On the southern facing surfaces the building has huge solar gains used for the heating of the house in winter. In summer the interior has to be protected against overheating and we install an effective shading device for this purpose.

## UNIQUE PASSIVE HEATING AND COOLING

A unique, semi-passive cooling-heating system was developed. The lacking thermal mass of the lightweight construction is provided in external insulated water tanks. Its great advantage is that shipping is not necessary as it is readily available everywhere and is easily disposed of once not needed and does not pollute the environment.

In winter, heat from the glazed surface of the south is transported to the buffer tanks for heating the house with it in the evening. In summer, sprinkling the water on the roof on evenings we cool it down and operate a ceiling integrated cooling system during the day with the cooling capacity.



## INNOVATION IN ARCHITECTURE

### Innovative use of space

In Odooproject we try to offer a new alternative framework with the help of our house for a more sustainable, healthier lifestyle. Every activity can be carried out inside and outside as well. The flexible design of spaces, the use of integrated functional units and mobile elements provide a more comfortable living and longer lifespan.

### Summer wall

The most significant, unique component of the Odoo representing the teamwork of architects, electrical and building service engineers, the summer wall hosts a lot of different features in the same time. It designates the space of the terrace, and incorporates the summer kitchen and resting area. It have a key role in the energy concept of the house as well as it contains the mechanical boxes and heat storage tank.

### Summer kitchen

A new type of a compact outdoor kitchen inspired by both Hungarian tradition and modern way of life.

### BIPV

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### Cieling

An integrated, unique ceiling system was developed for the house. It acts as a radiant cooling surface and a well-performing acoustical ceiling was also needed. Its design fits to the dimensions of the recessed LED stripes resulting a homogenous surface.