



# LOW COST HOUSING

# CHALLENGE

**In great parts of the world there is a tremendous demand for low cost housing. This demand derives on the one hand from population growth and on the other hand from crises like wars, earthquakes and other kinds of catastrophes.**

**Also new housing concepts are required because of changing expectations on living and housing in general.**

We are aiming to find an economic solution to produce housing. Due to different expectations and requirements of the areas one single solution certainly cannot fulfil all the aspects. Nevertheless it is a well-grounded base that can be modified to local requirements and needs.

**Basic requirements are identical in all areas:**

- Secluded own space of living (i.e. requirement for security)
- Stability against collapse (earthquakes, incident of fire, vandalism)
- Minimum standard of hygiene (WC, shower)
- Daylight from the outside
- Light at night
- Low cost solution
- Time saving construction

**Additional elements are necessary depending on the geographical factors and requirements:**

- Heating
- Running warm water
- Air conditioning
- Heat insulation
- Shadowing
- Kitchen in or outside the living area
- Terrace
- Balcony
- Construction of more than one floor

# SOLUTION

There are several construction methods and construction materials that are possible to build housings. Each of them has got advantages and disadvantages. Deriving from the European experience in building with concrete components, it is an ideal solution, if the desired quantity of houses is large enough and planning is consequently matched on this way of building houses.

Like no other material concrete components fulfil the essential basic needs of building due to the characteristics of concrete. Concrete is highly resistant towards the incident of fire, is a perfect heat accumulator and is available in most parts of the world. Ground plot and floor plan can be designed individually. As a result of the connection of the concrete components low cost housing can be constructed, so that it resists even adverse living conditions like earthquakes, incident of fire and vandalism.

Concrete components can be designed multifunctional. For example it offers already integrated pre-casted inlays in the concrete for sanitary facilities, electricity and electricity plugs, windows and doors and so on.

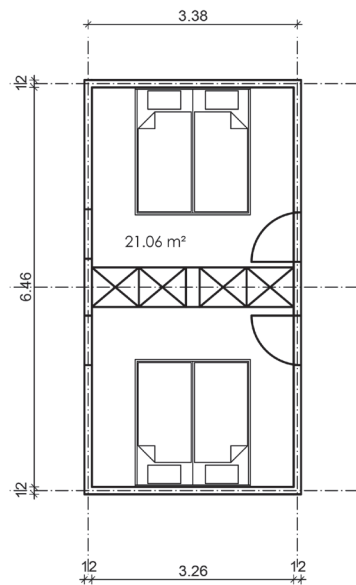
**Below there are presented concepts that are composed as modules and can be designed due to individual needs.**

**It consists out of three modules:**

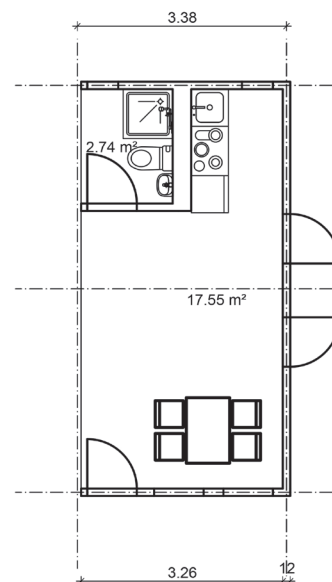
**Module Type 1: 1 sleeping unit for 4 persons**

**Module Type 2: 1 living unit with bathroom and kitchen**

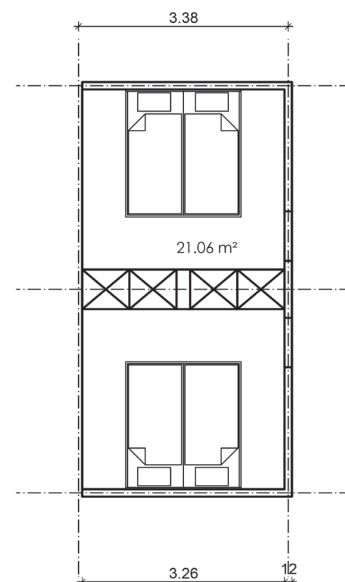
**Module Type 3: 1 sleeping unit for 4 persons**



**Module Type 1**

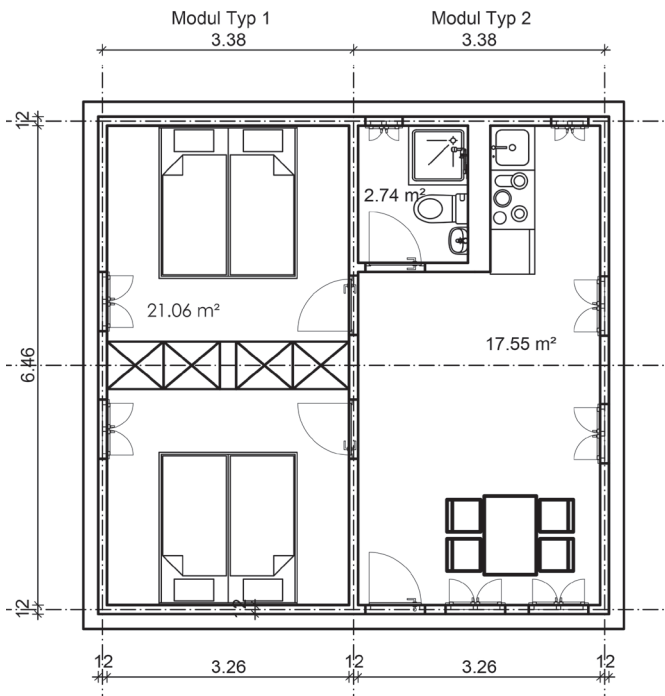


**Module Type 2**



**Module Type 3**

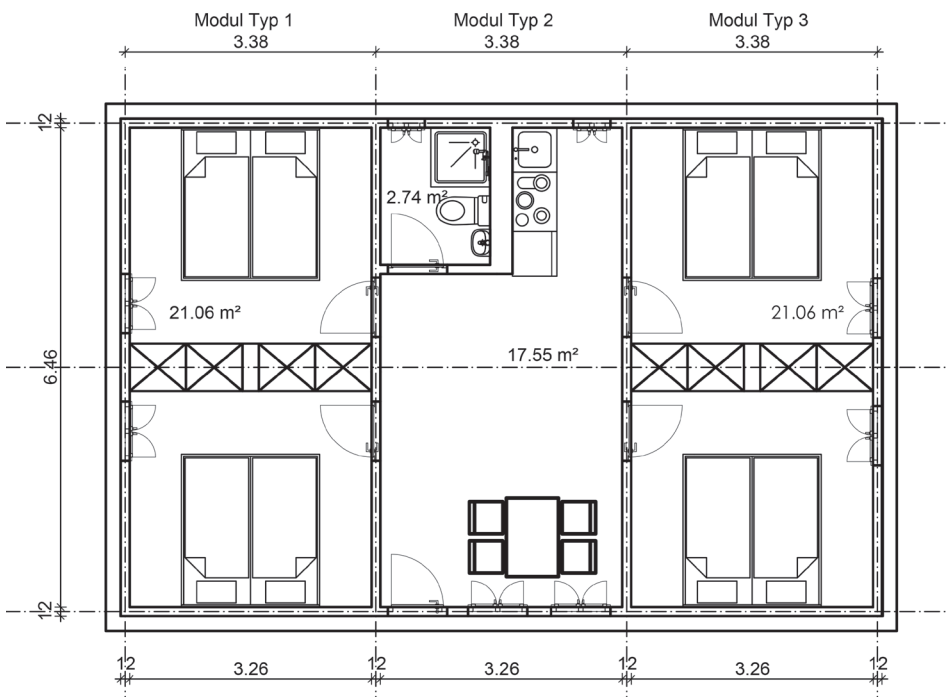
## Assembly of parts of modules 1 and 2, single- or two - floors



### House Type 1

Module 1 and 2, singlefloor

1 sleeping unit for 4 persons, 1 living unit with bathroom and kitchen



### House Type 2

Module 1, 2 and 3, singlefloor

2 sleeping units for 8 persons, 1 living unit with bathroom and kitchen

## Realization – Costs

There are diverging requirements for production. The costs depend substantially on the quantity and on the construction time of the housing. Production can be done as a stationary production or on a production at the building site.

Basis of this cost estimation is building a production ground from which the building site can be supplied by trucks within 50 kilometres. Furthermore as a basis was taken a battery of concrete form work with 20 chambers of 7,10 x 3,50m. A concrete batching plant is not included in the calculation of cost.

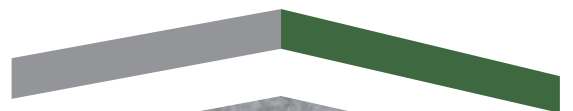
On the following pages there are presented standard houses that can be produced within a year with this kind of production plant.

### The features below are included in the cost estimation:

- Production of the concrete elements – floor plate, walls, ceiling, roof
- Transportation of the concrete elements to the constructions site
- Installation/Montage of the elements with a crane inclusive installation material
- Electricity - lightening und electricity plugs
- Sanitary facilities including installation

### Features that are not includes in the cost estimation:

- Earthworks
- Strip footing
- Supply lines (water, drain, electricity)
- Lightening protector
- Kitchen
- Furniture
- Painting work
- Heat insulation
- Heating
- Air conditioning
- Waterproofing of roofs against heavy rains (i.e. tropical area)

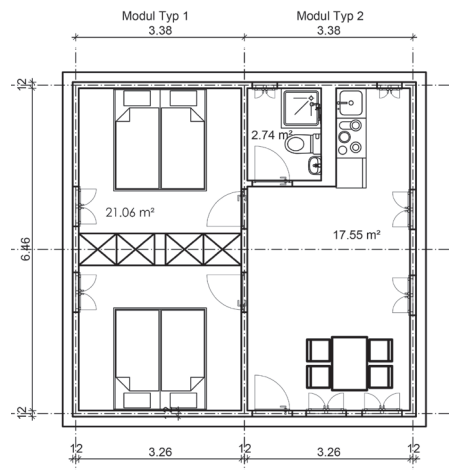


## House Type 1 Modules 1 and 2, single floor

- 1 sleeping unit for 4 persons
- 1 living unit with bathroom and kitchen



**Construction and installation**  
**Amount of produced houses per year: 450 units**

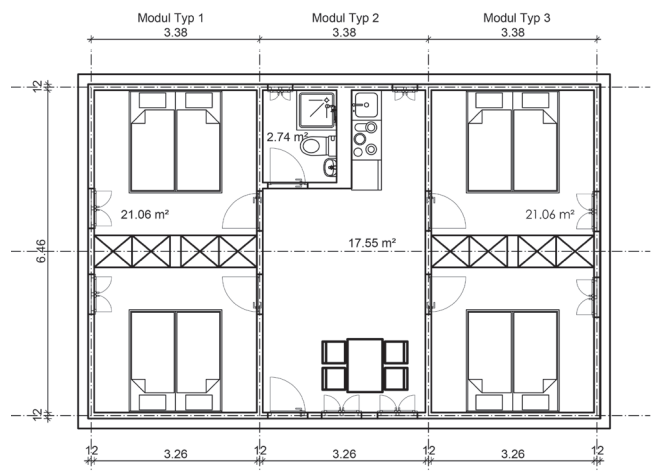


## House Type 2 Modules 1, 2 and 3, single floor

- 2 sleeping units for 8 persons
- 1 living unit with bathroom and kitchen

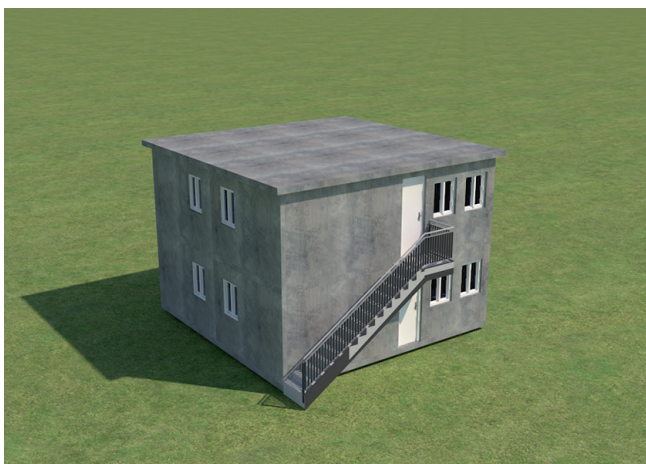


**Construction and installation**  
**Amount of produced houses per year: 320 units**



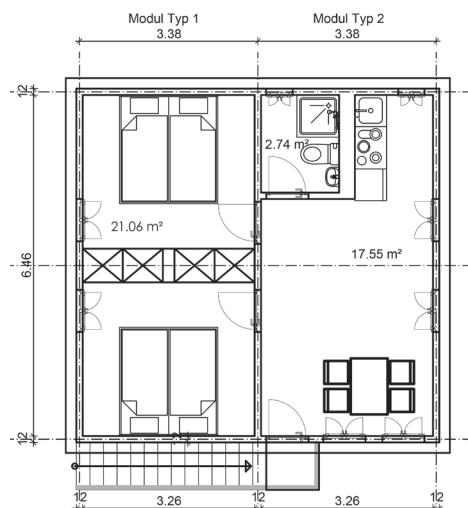
## House Type 3 Modules 1 and 2, two floors

2 sleeping units for 8 persons  
2 living units with bathroom and kitchen



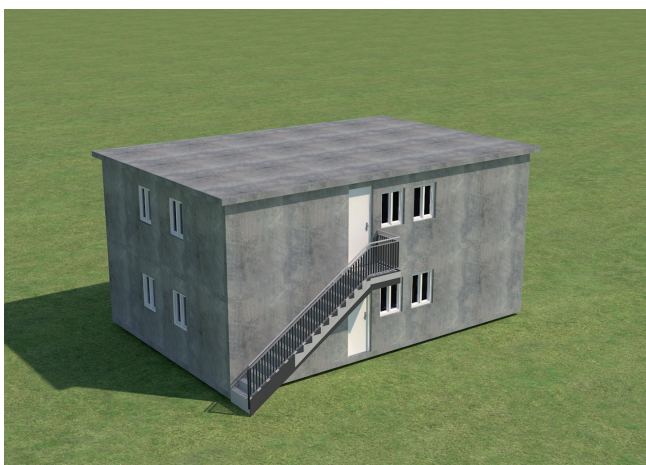
### Construction and installation

Amount of produced houses per year: 250 units



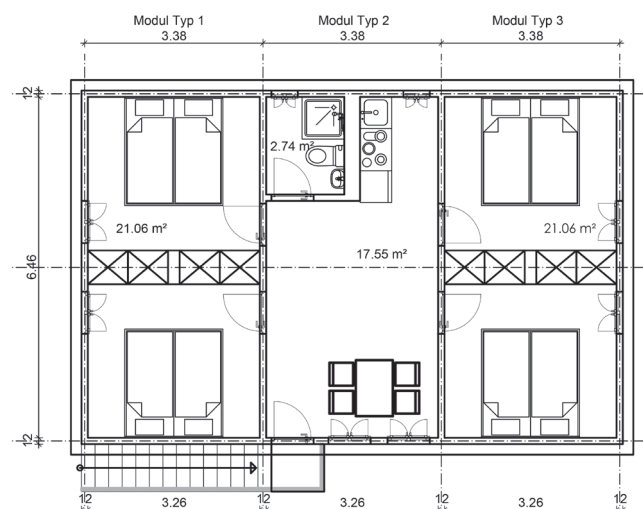
## House Type 4 Modules 1, 2 and 3, two floors

4 sleeping units for 16 persons  
2 living units with bathroom and kitchen



### Construction and installation

Amount of produced houses per year: 185 units



## Support from planning to realisation:

Martin Dobler Projektmanagement GmbH gladly supports you with the realisation of your concepts.

### Our offers:

- Project catalogue of the basic version (assembly schedule and production plan)
- Adjustment of the assembly plan and the production plan due to the requirements on site.
- Optimizing of the production and production facility
- Support with the implementing of production
- Training of employees in the production
- Optimizing of the process planning and production process

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