



# GREEN LIVING - PARTICIPANT BRIEF





### Time

Use the first 10 minutes to read the information, assign job roles that suit team members' strengths, and make sure that everyone understands what needs to be done.

### Team tasks

1. Assign job roles and responsibilities to members of your team (see Job roles section below).
2. Produce a site plan showing your field and 10 new houses. Mark all the roads and landmarks, showing details such as vehicle and pedestrian access, car parking, individual plot boundaries and other features.

#### Note:

- You must be able to access the estate by road.
- There should be some way of getting to every house, at least by footpath, and have a footpath to the door.
- There must be at least one access road onto the estate.
- Each property must have somewhere to park at least one vehicle.
- The estate design should include some public space, such as a playing field.

3. Produce a financial tender showing your team's costs and a profit forecast of between 10% and 25%. Your aim is to make a good profit while keeping the price reasonable so that the client can add their own profit of 30%.

#### Note:

- The average three-bedroomed house in the area currently sells for £120,000.

4. Present your group's design, tender and reasoning to the client. All members of the group must be involved.

- You are acting as a small construction company that designs and builds housing estates in the UK.
- A **client** (in this case, a local entrepreneur) has just purchased a farmer's field. It's your company's intention to be one of several construction companies that will **tender** (make a bid) for the work to build 10 houses on the field.
- The client wants the estate to have houses that are attractive so that they will sell easily. They also want to build in some features that will be good for the environment and benefit the homeowners.

You can find a definition of the words in bold in the vocabulary section.

## Site layout

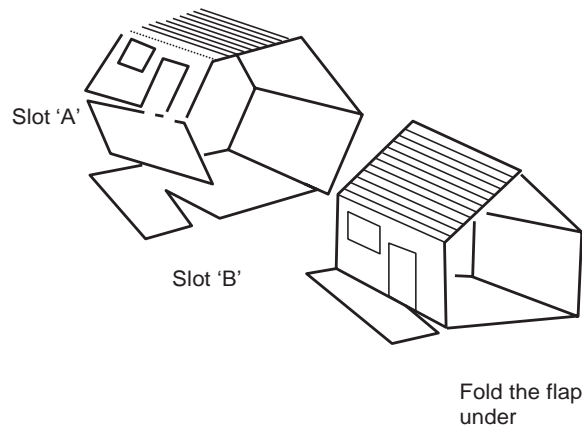
1. Use A2 or flipchart paper to represent the area surrounding the farmer's field.
2. Mark the compass points of north, south, east and west.
3. Glue the A3 paper in the middle of the larger sheet and use it as the field on which to build the 10 houses.
4. Draw the existing features, such as the wooded area, the dual carriageway and the country road surrounding the field.

### Note:

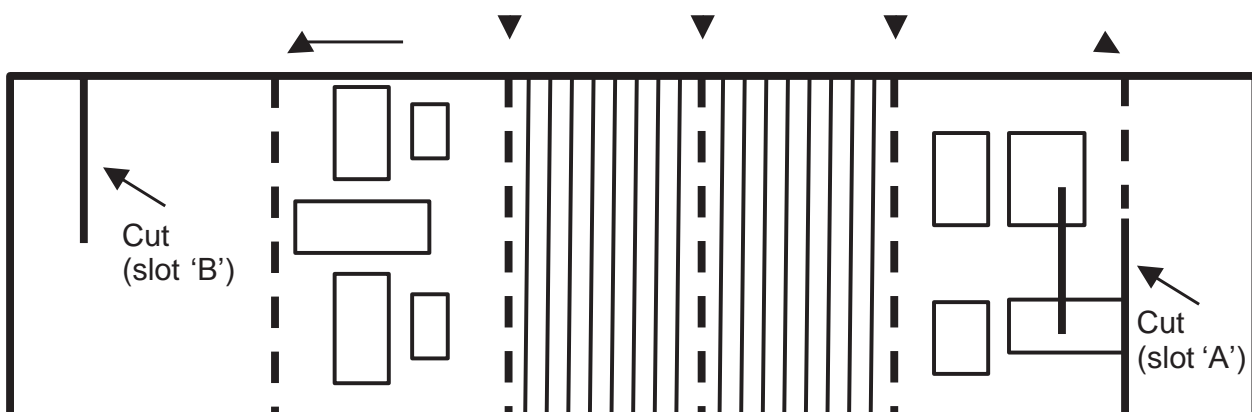
- In the middle of the field is a small gravel pit full of water.
- To the north and west are wooded areas.
- To the south is a dual carriageway.
- Along the east boundary of the field runs a B-road, B3406, which connects with the dual carriageway to the south.
- The B3406 goes to a small village with its own primary school a mile to the north.
- The B3406 is a country road with no pavements.
- To the west is a large town.

## Houses

- The client borrowed £500,000 to purchase the land, so you don't need to include this cost. However, the client will want the sale of the houses to repay the loan and make a 30% profit.
- Your team needs to decide on the mix of houses for the development (based on cost, profit and aesthetics).
- The cost of building each house type is:
  - i. Bungalow  
£60,000
  - ii. Two-storey house  
£50,000
  - iii. Three-storey house  
£80,000.
- The client wants two renewables to be designed into each house type (e.g. bungalow) should have the same type of renewables fitted.
- Use the templates provided at the end of this document to cut out the required number of houses and turn them into 3D models as shown below:



Fold along the dotted lines





## Job roles

If there are less than six people in your team, decide who'll have more than one job role.

### Architect

The architect is responsible for making up the 3D houses and will work closely with the civil engineer to position them correctly on the field in relation to pathways, boundaries and sun direction.

### Civil engineer

The civil engineer marks out all the roads, vehicle and pedestrian access, car parking, individual plot boundaries and other features inside and outside the field. They should work closely with the architect to make sure that the houses are positioned correctly.

### Project manager

The project manager is the team leader. They need to make sure that everybody in the team understands their job and that everyone works together. They're also responsible for making sure all the tasks are completed in time to present to the client.

### Sustainability manager

The sustainability manager is responsible for collecting information about the green technologies and other sustainability options. They should tell the rest of the team the advantages and disadvantages of each technology so that the team knows enough to make decisions about which ones to use. This role may involve research.

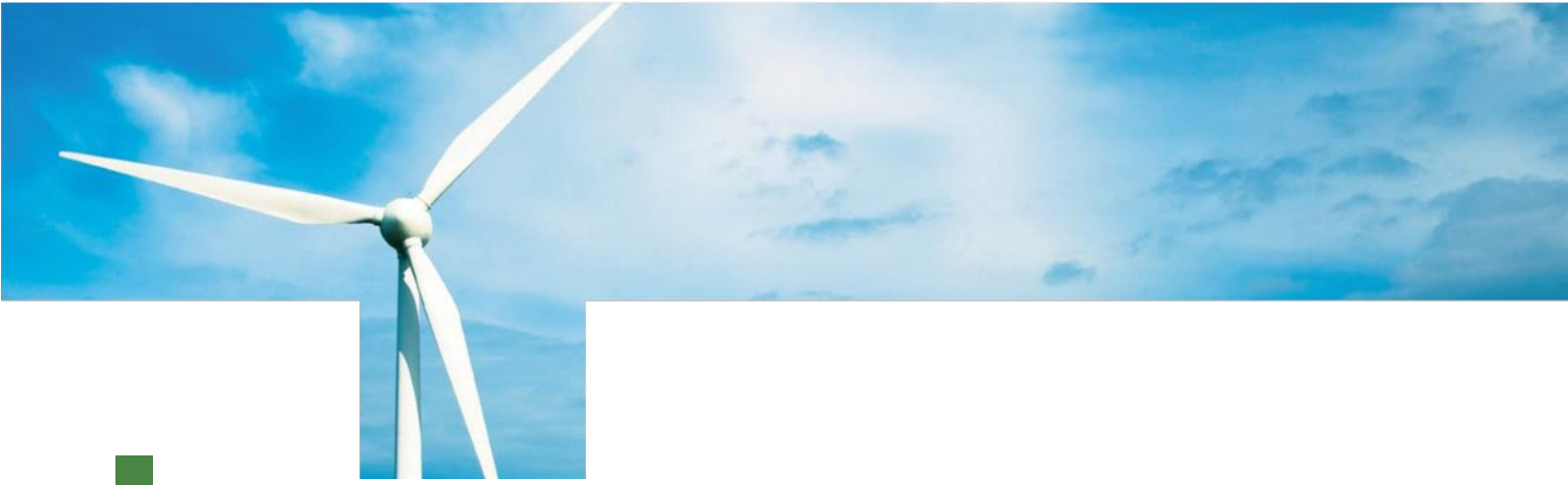
### Quantity surveyor

The quantity surveyor is the financial whiz. Their job is to develop the tender on the tender submission sheet provided.

### Bid manager

The bid manager is in charge of the company's final presentation. They must make sure that the tender is correctly calculated and that all the client's criteria have been met. They will prepare the final presentation, making sure that any unique features are highlighted and that each member of the team is involved.





## Vocabulary

**Aesthetics** An opinion or perception of an object based on its beauty.

**Biomass** The 'natural material' from plants, trees or animals. When biomass is burned in a power station, it releases heat and can be used to make steam to power electricity. Biomass-fuelled boilers can be used in houses to produce heat and hot water.

**Client** A customer requiring the supply of goods or services.

**Costs** In this case, your costs are the plant, materials and labour used to build the houses.

**Geothermal** 'Geo' means 'from the earth' and 'thermal' means 'heat'. A geothermal heating system uses pipes buried more than a metre deep in the earth, where the temperature stays constant.

**Labour** All work carried out by employees.

**Plant** All machinery needed to prepare the land (e.g. excavator, stone crusher) and build the houses (e.g. crane, cement mixer).

**Profit** The financial gain after costs. For this activity, your estimated profit should not be less than 10% or you may make a loss. Your maximum profit should not exceed 25% or the houses will be too expensive for buyers.

**Renewables** Energy-generators made from resources that are replaced by nature, like wind, water and sunshine. Renewable energy is sometimes called 'clean' or 'green' because it doesn't pollute the air or water.

**Rainwater harvesting** The collection of rainwater for reuse, rather than allowing it to run off. It can be used to water the garden, to flush toilets or for indoor heating.

**Remedial works** Changes which need to be made to a site before construction can start, in this case, draining and landscaping the gravel pit.

**Services** Gas, electricity, water, drains and telecommunications.

**Solar panels** 'Solar' is the Latin word for 'sun'. Solar panels are designed to absorb and store the sun's rays as a source of energy for generating electricity or heating.

**Tender** Tendering is the process of making an offer for the supply of goods or services. In this case, the tender is to build 10 houses. The tender must meet the client's needs and provide the best value for money.

**Wind turbines** Using the power of the wind to turn it into electricity. The bigger the wind turbine, the more wind it reaches and the more electricity it produces.



# TENDER SUBMISSION



Housing estate name \_\_\_\_\_

Compulsory costs per house (plant, materials and labour)		Number of houses
<b>Remedial works</b>	£8,500	10
<b>Services</b> per house	£9,500	10
Costs per house (plant, materials and labour)		Number of houses
Bungalow	£60,000	
Two-storey house	£50,000	
Three-storey house	£80,000	

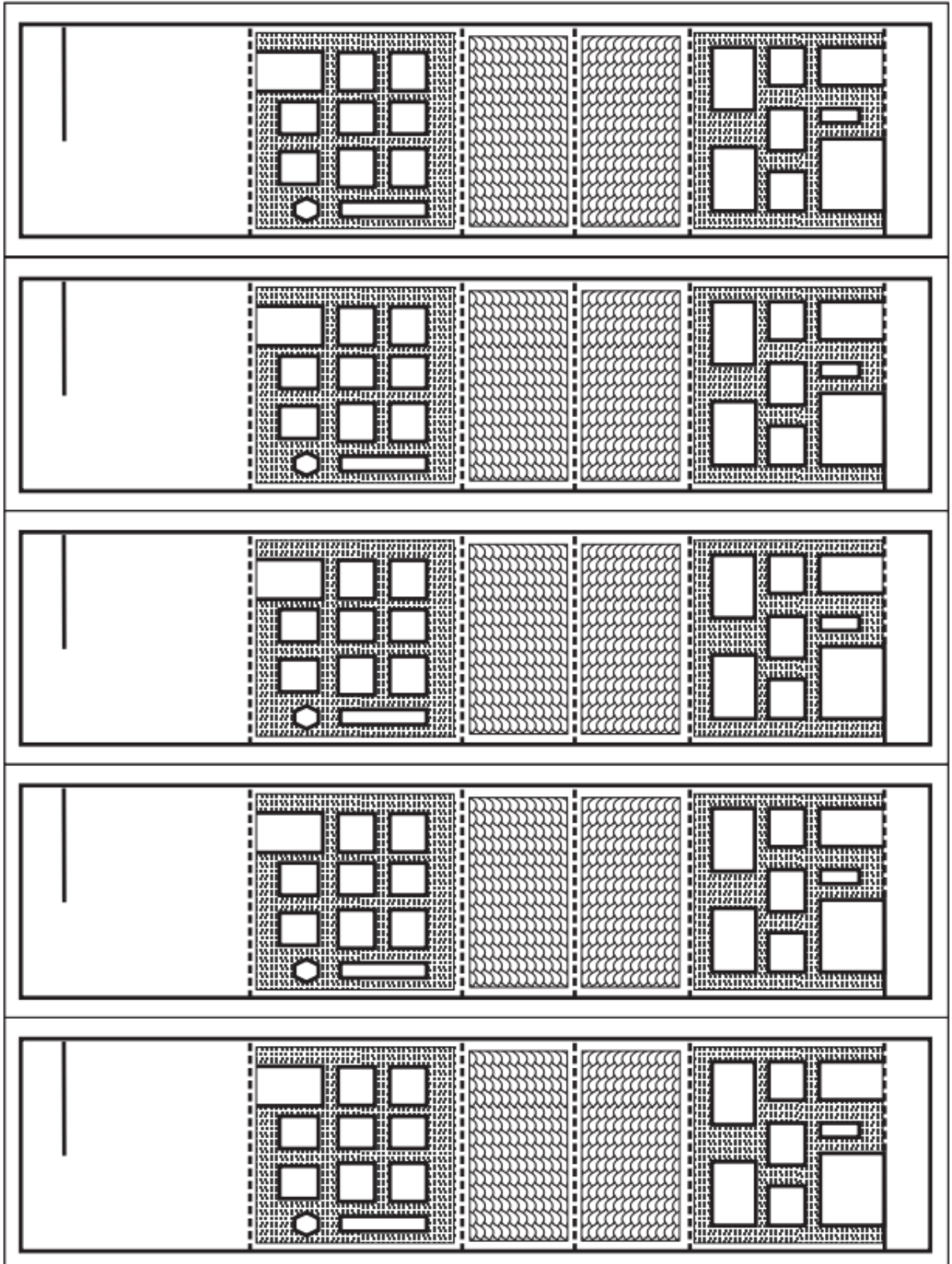
Choice of at least two renewables	Cost per house	Bungalow	Two-storey	Three-storey
<b>Rainwater harvesting</b> system	£800			
<b>Biomass</b> boiler	£1,400			
<b>Solar panels</b>	£2,300			
<b>Geothermal</b> heating/cooling system	£7,300			
2.5kW pole-mounted <b>wind turbine</b>	£3,000			

Cost of each house before profit	
Bungalow £60,000 + remedial works/services/renewables	
Two-storey £50,000 + remedial works/services/renewables	
Three-storey £80,000 + remedial works/services/renewables	

Cost of each house (selling price to the client) after profit is added				
	10%	15%	20%	25%
Bungalow				
Two-storey				
Three-storey				

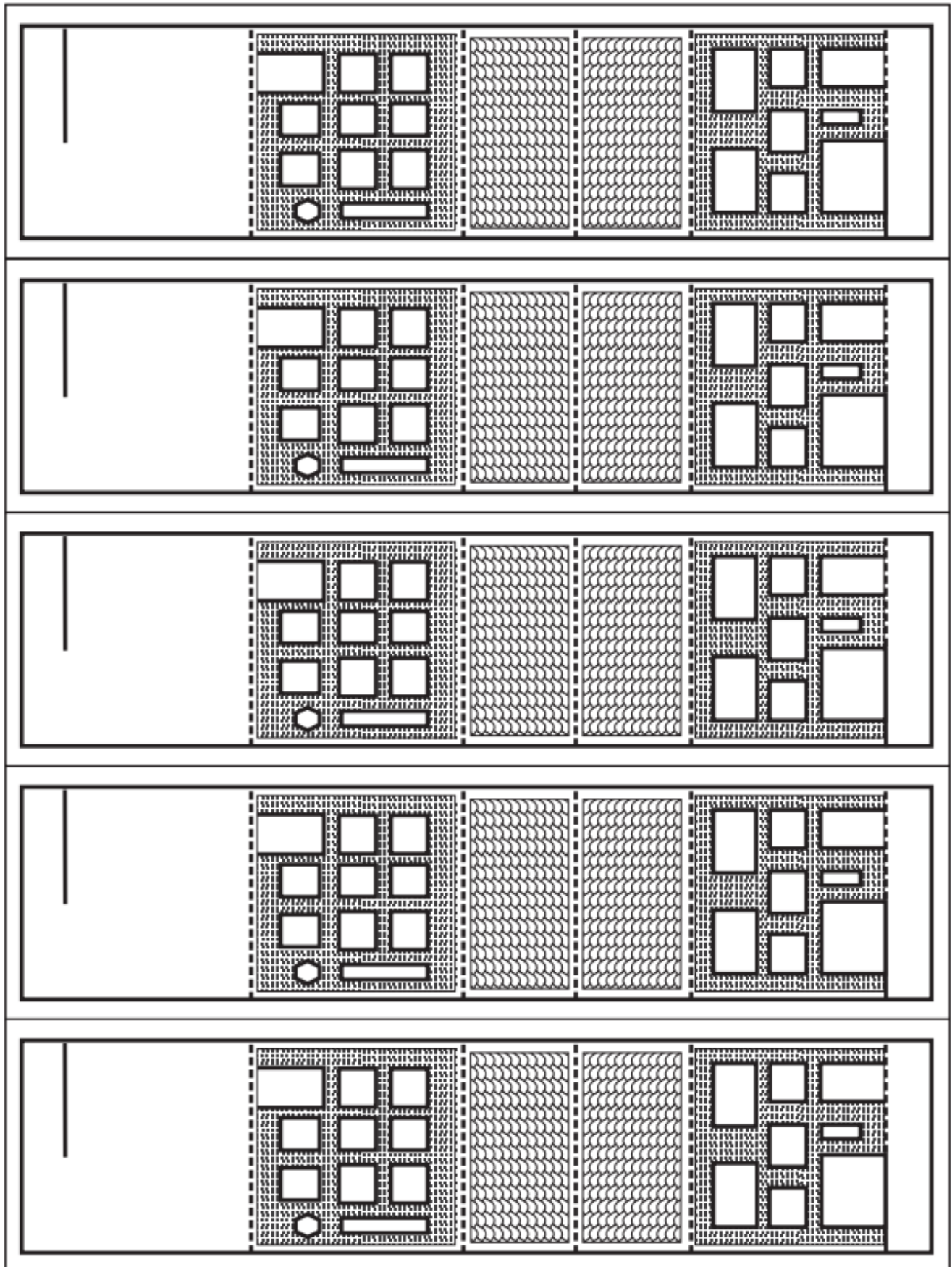
**Don't forget the client will be adding 30% profit to get the overall selling price for each house.**

# Three-storey house template



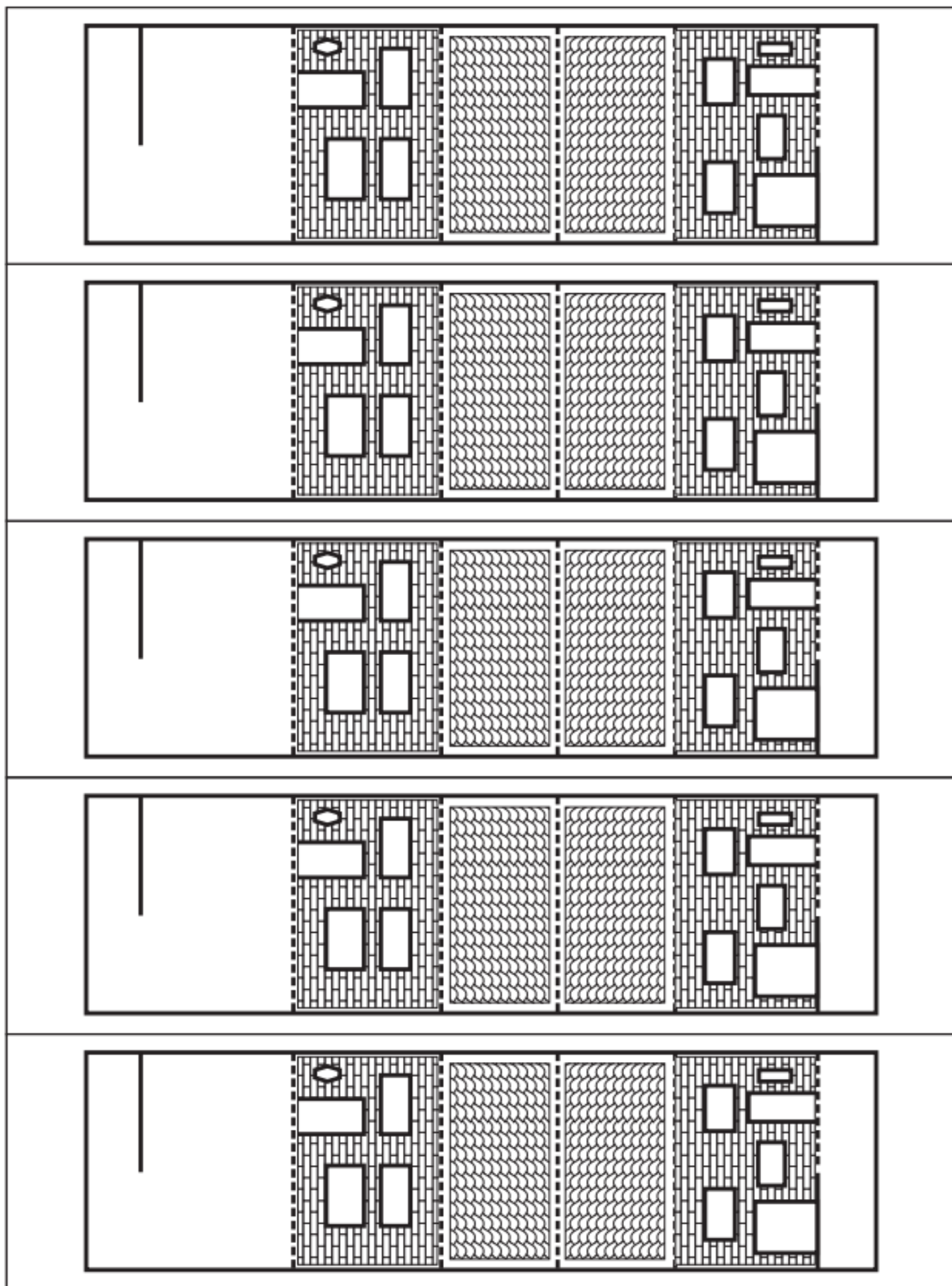


# Three-storey house template

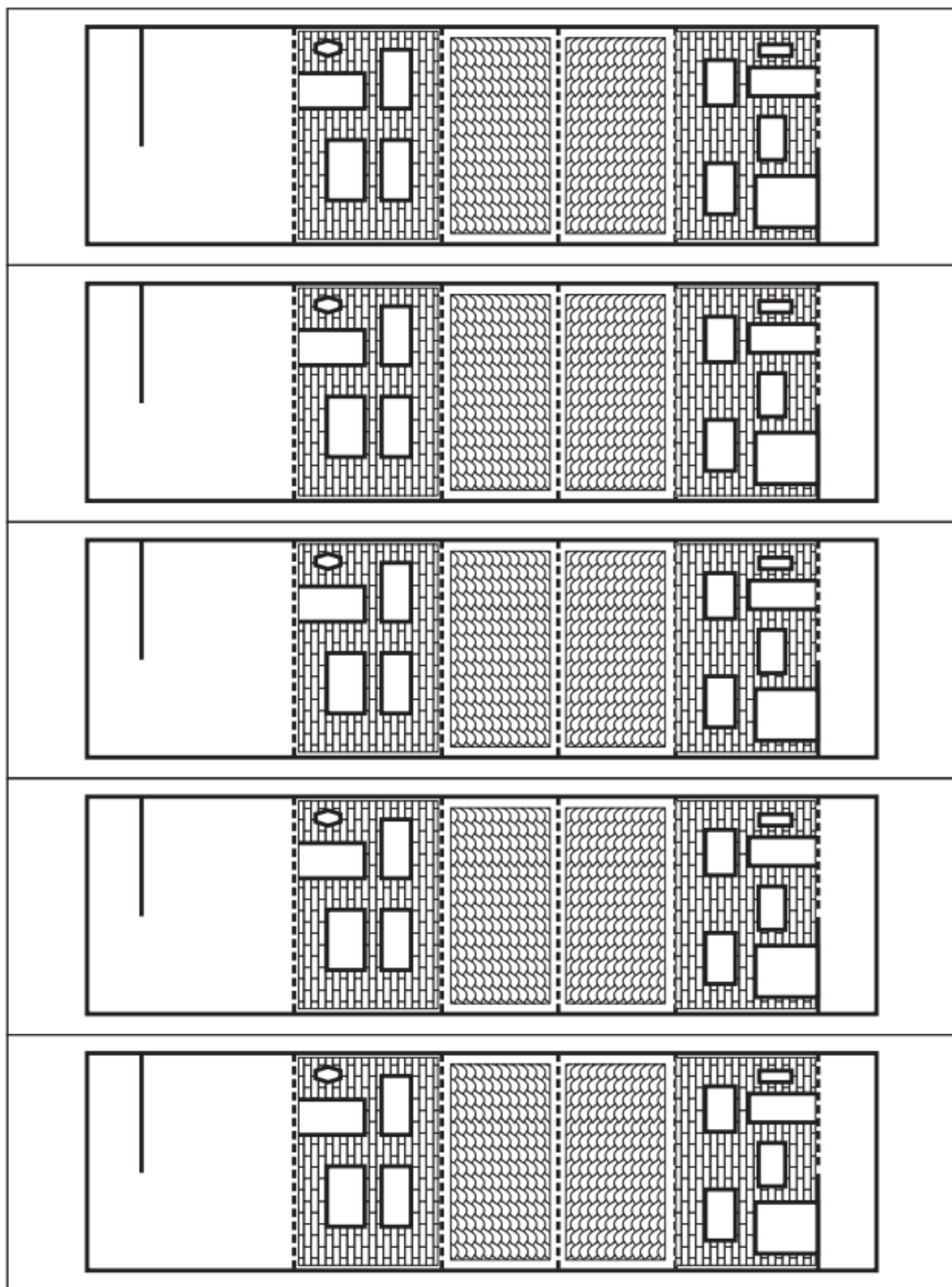




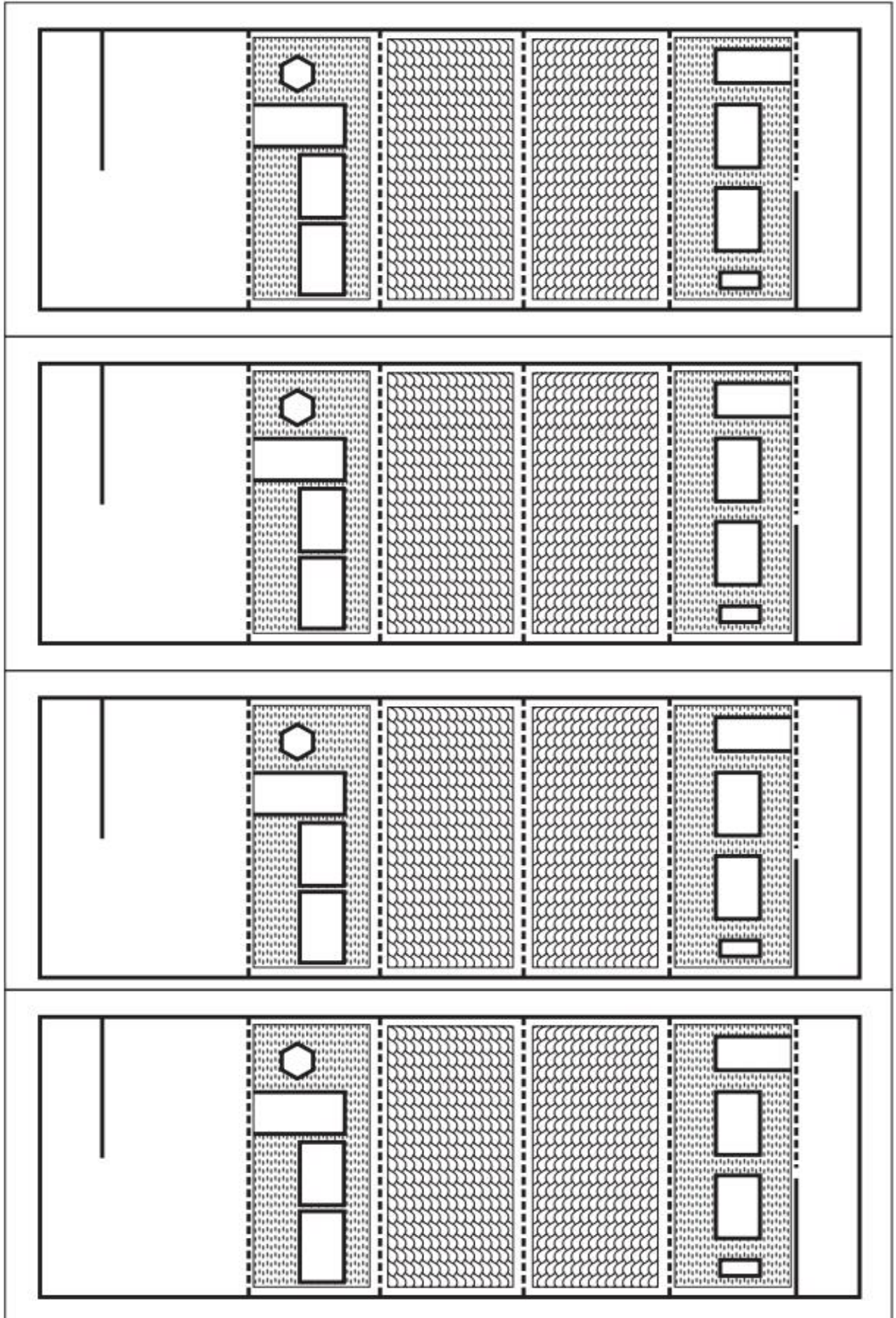
## Two-storey house template



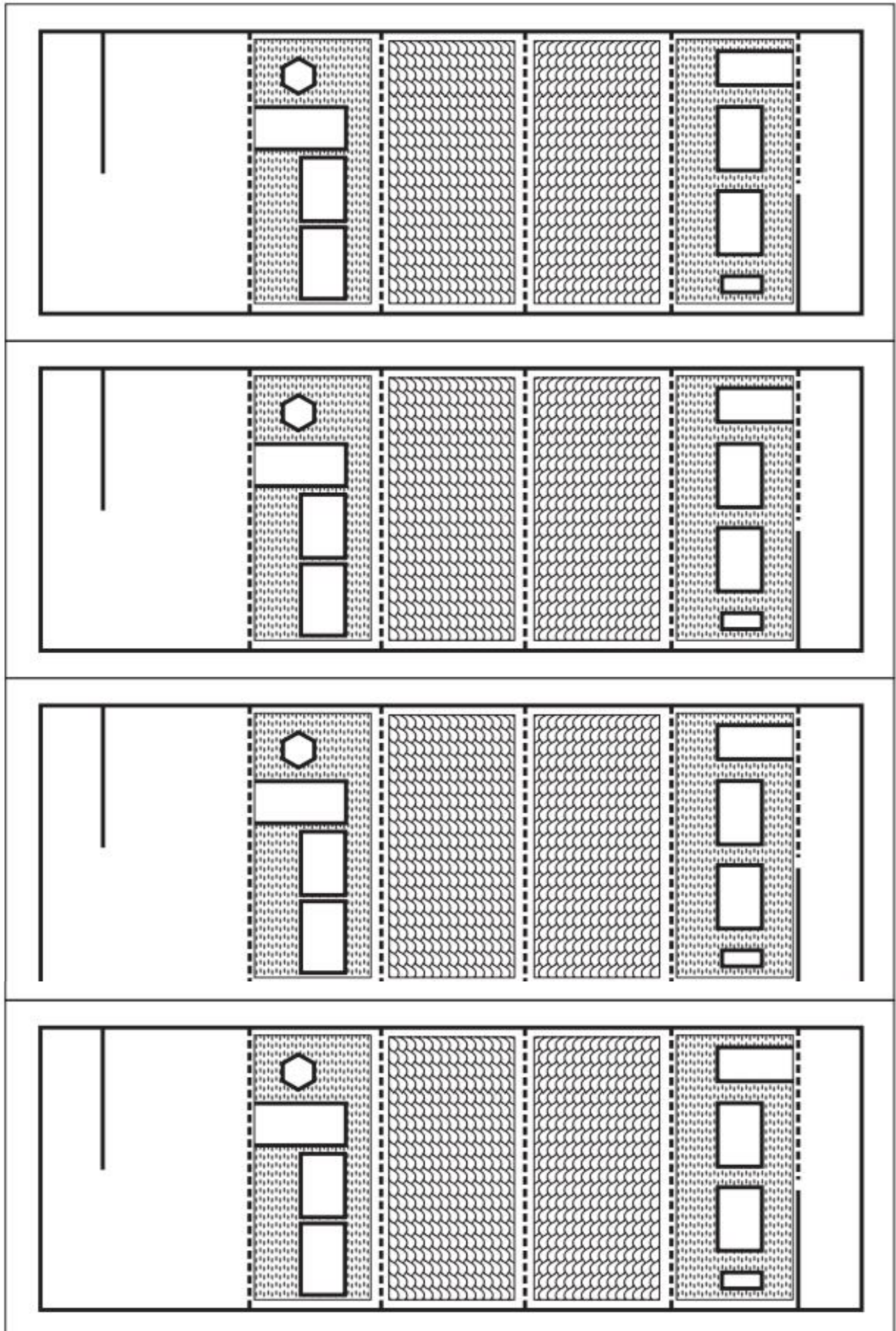
## Two-storey house template











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**goconstruct.org**

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