# 7 Future homes

## Switch on

Work in pairs. Discuss these predictions about future homes. Decide if they will happen within 15 or 75 years, or never.

| PREDICTION | 15 YEARS | 75 YEARS | NEVER |
|---|---|---|---|
| 1 Many people will live in houses floating on the sea. | | | |
| 2 Homes will produce their own water supply through condensation. | | | |
| 3 At least 25% of homes will be self-sufficient in power. | | | |
| 4 We will develop a house which is disaster-proof, capable of withstanding earthquakes, hurricanes, and flooding. | | | |
| 5 Houses will be constructed largely from plastic. | | | |
| 6 Houses will require very little maintenance such as painting. | | | |
| 7 Many homes will be built underground or in part underground. | | | |
| 8 You will be able to move internal walls and change the colour of rooms at the touch of a switch. | | | |
| 9 Houses will generate their own electricity. | | | |
| 10 Houses will have zero emissions. | | | |

## Listening

### Earth homes

Listen to Peter Carpenter, a designer of earth homes, and tick the advantages he mentions.

a long life expectancy
b better energy savings than other designs
c architecturally exciting inside
d condensation is not a problem
e proof against earthquakes
f does not contribute to, and is less affected by, global warming
g costs no more – maybe less – to build than a conventional house
h unaffected by wind and weather
i kind to the environment
j provides greater security
k no draughts – minimum infiltration
l exceptionally low fire risk, so lower insurance premiums
m construction possible on steep slopes
n usually provides low visual impact
o very little structural maintenance
p quiet and private, but light and airy

**In this unit**
- ways to describe obligation and necessity
- adjective endings
- making inferences from written text
- transferring information from a text to a diagram

## Language spot

### Obligation and necessity

- Study these sentences:

1 *You don't have to paint the walls.*
= It's not necessary

2 *You have to get planning permission.*
= It's an obligation (required by law)

3 *The roof must be strong.*
= It's necessary

- We use *have to* to describe things which are obligations required by rules and regulations or things which someone forces us to do.

- Negatives and questions are formed with *do*.
***Do you have to*** *install air conditioning?*

- In positive sentences we can use *must* in a similar way, but the emphasis is because you think it is necessary.

- Note the difference between *don't have to* and *mustn't*:
*You* ***don't have to*** *spend a lot on heating an earth house.*
= It's not necessary.
*You* ***mustn't*** *build an earth house without planning permission.* = It's not permitted.

» Go to **Grammar reference** p.117

**1** Show the meaning of each of these sentences by marking them: *obligation*, *necessary*, *not necessary*, or *not permitted*.

1 You must use materials of the right standard.
_____

2 You don't have to use wood; plastic is acceptable.
_____

3 The walls must resist the pressure of earth round the building. _____

4 You mustn't build within one metre of another building. _____

5 You have to lay proper foundations. _____

6 All electrical wiring has to be tested.
_____

7 You don't have to paint plastic window frames.
_____

8 All appliances have to be earthed. _____

**2** Complete the sentences with *must*, *mustn't*, or *don't / doesn't have to*.

1 The structure _____ be strong enough to bear the weight of earth.

2 You _____ let the house overheat.

3 You _____ use stone for the front wall; brick is fine.

4 You _____ make sure no water gets into the house from the surrounding soil.

5 Your house _____ be deep under ground; 1.5m of earth above the roof is enough to fully insulate the building.

6 The weight on the roof is about 3 kN/m² so you _____ use pre-stressed concrete roof beams.

7 The house is very well insulated, so you _____ provide much heating.

8 There are strict rules about where you can build. You _____ build without planning permission.

**3** Make a sentence about each of these building regulations using an appropriate form of *must* or *have to*.

EXAMPLE
*Agricultural buildings* ***must not*** *be used for living accommodation.*

| Type of building | Building regulations |
|---|---|
| Agricultural | Not to be used for living accommodation |
| | 1 At least 100 metres from a house |
| | 2 Fire exit required |
| Temporary | 3 On site for no more than 28 days |
| Construction site office | 4 Sleeping accommodation not permitted |
| Greenhouse | 5 Planning permission not required |
| School | 6 Alarm systems required |
| | 7 Disabled access required |

## Gadget box

The microcompact house is a 2.66m cube with a timber frame and an anodized aluminium cladding. It contains two compact double beds, a shower/toilet, and a kitchen with sink, microwave, fridge, freezer, and hob. It is fitted with heating and air-conditioning. It weighs 2.2 tonnes.

Who do you think the microcompact home is intended for?

# Vocabulary

## Adjectives with *-able* and *-ible*

**1** Many adjectives ending in *-able* or *-ible* describe the ability to do something. Complete the table. All the words have been used in this or earlier units.

| can ... | adjective |
|---|---|
| be adapted | adaptable |
| be converted | |
| be seen | |
| be predicted | |
| last a long time | |
| be put into effect or made to work | |
| vary | |

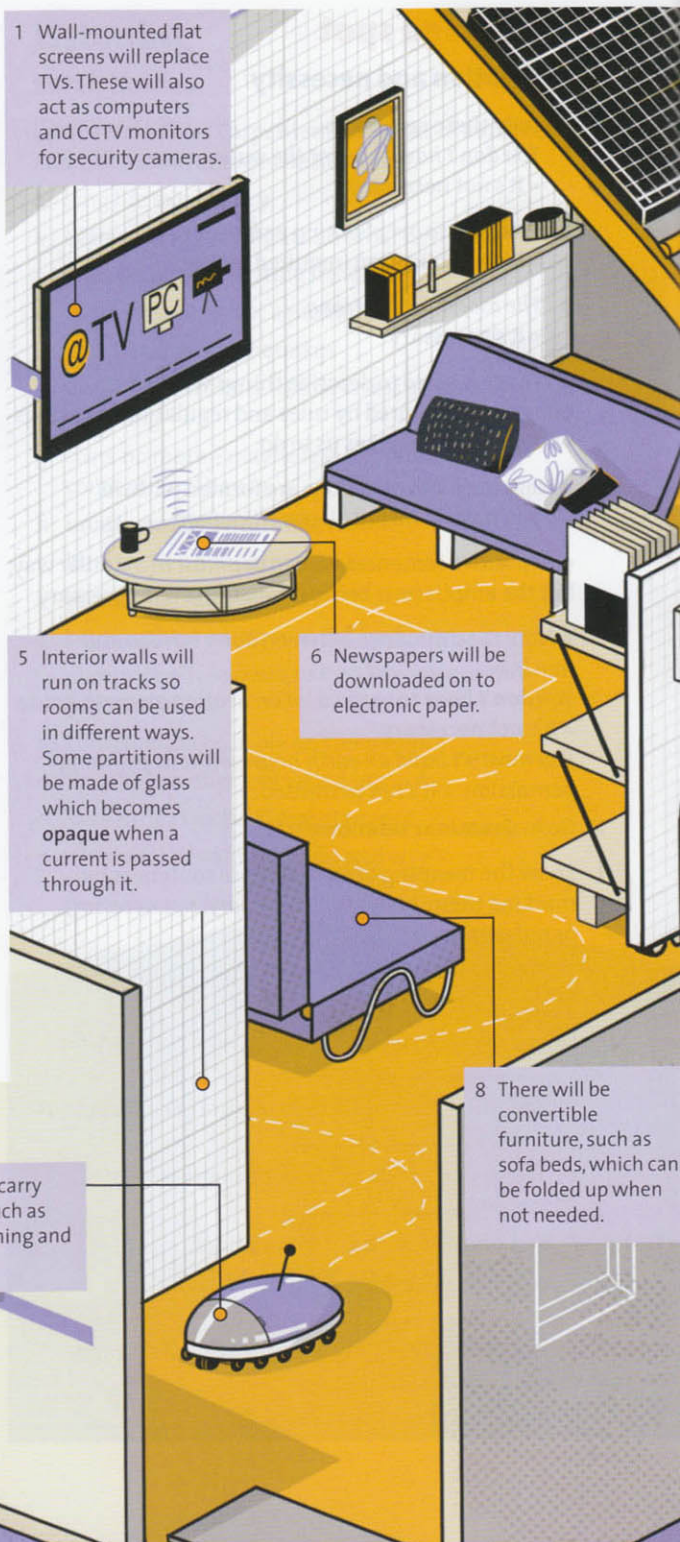
**2** 🎧 Now listen to the words and underline the stressed syllable. The first one has been done for you in the table above.

# Reading

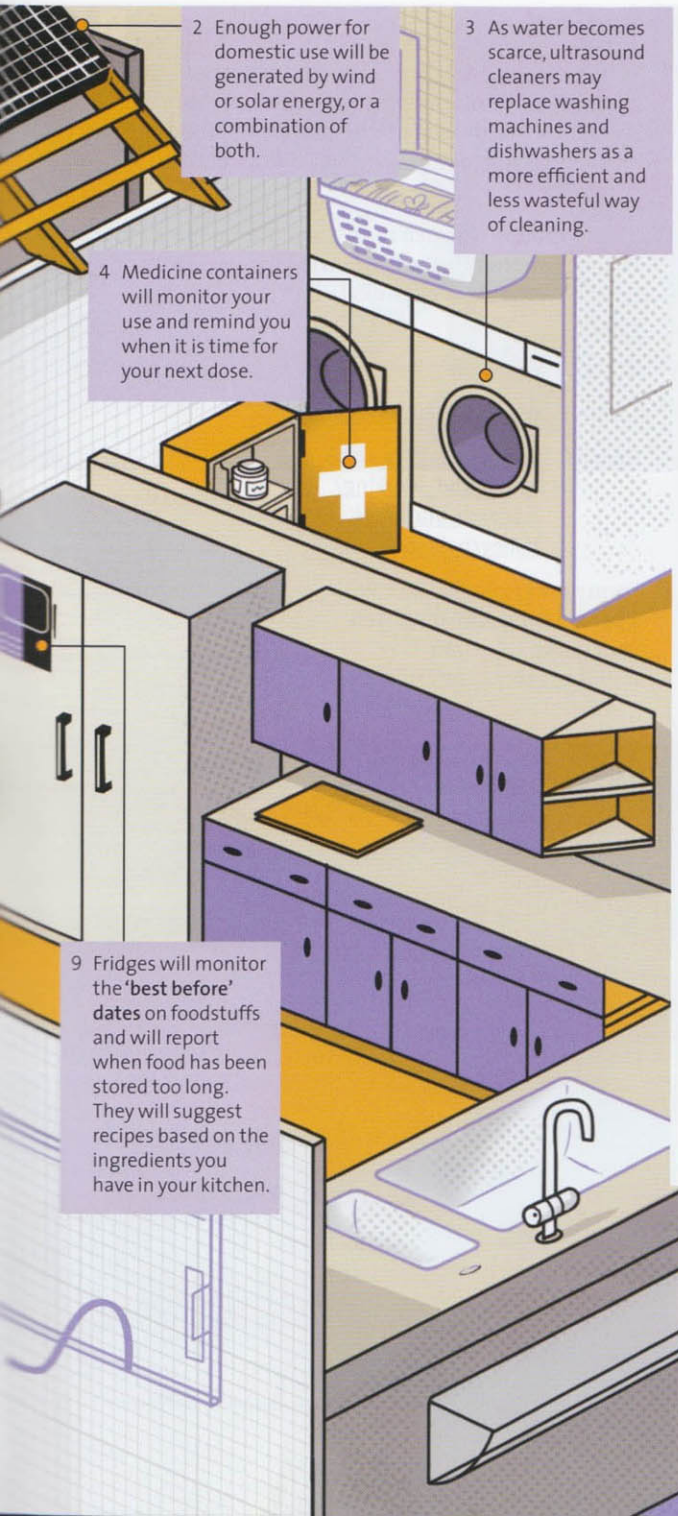
## Inside the future home

**1** Work in pairs. Make a list of ways in which homes of the future will be different from homes of today.

**2** Study the diagram and read the associated texts. Compare your list in **1** with the information.



**opaque** (adj) not clear enough to see through or allow light through
**dust** (v) clean surfaces with a cloth
**best before date** (n) date printed on a food package advising you the product will not be of such good quality after this date




**3** The texts give the reasons for some of the predictions about future homes, but not for all. In your notebooks, list the reasons for these predictions where they are given.

| Prediction |
| --- |
| Houses will be smaller. |
| Interior walls will run on tracks. |
| Some partitions will be made of glass which becomes opaque when a current is passed through it. |
| There will be convertible furniture. |
| Wall-mounted flat screens will replace TVs. |
| Ultrasound cleaners may replace washing machines and dishwashers. |
| Robots will carry out tasks such as carpet cleaning and dusting. |
| Fridges will monitor the 'best before' dates on foodstuffs. |
| Newspapers will be downloaded onto electronic paper. |
| Medicine containers will monitor your use. |
| Enough power for domestic use will be generated by wind or solar energy, or a combination of both. |

**4** With your partner, write your own reason for each prediction where no reason is provided in the texts. Use inference skills to combine information given in the texts with your own knowledge.

EXAMPLES

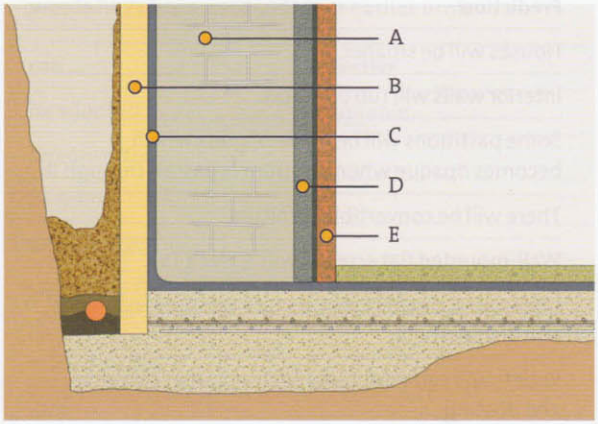
Robots will carry out tasks such as carpet cleaning and dusting *because this saves work and time by humans.*

Fridges will monitor the 'best before' dates on foodstuffs *to make sure we don't eat dangerously old food.*

In a country threatened by flooding, the safest place to be is actually on the water. Then your house just goes up and down.
**Koen Olthuis**, *floating house Architect*

## Problem-solving

**1** Look at the diagram of a section of wall used in an earth home. Try to guess what the key parts of the structure are and what they are made of.




**2** Now label the diagram using the information contained in the text.

### BACK AND SIDE WALLS

These are multileaf concrete and insulation. The outermost envelope, which is built first, is 150 mm concrete block (1) with a few supporting pillars outside. This acts as a permanent shutter for the heavy waterproof tanking membrane (2). Inside that is the main structural wall (3) made from 660 mm dense concrete block. The insulation comprises 100 mm slabs of expanded polyurethane (4) and these are fixed to the concrete wall with adhesive, all the cracks and joints being filled with aerosol PU foam. The insulation is protected with a vapour barrier of polythene and the final layer of 100 mm concrete or brick (5) is built inside that. These walls have to be very strong, completely and permanently waterproofed, insulated to the highest standards, and vapour-proofed from within to prevent deterioration of the insulation. The back wall is altogether just over 1m thick and is supported at 4m intervals by the structural counterforts which separate one room from the next.

## Project

**1** Work in groups, A, B, and C. The pictures show examples of accommodation designed for particular situations. Decide in your group what the situations are and how technology has been used to meet their requirements.

**2** In your groups, research more about the buildings in **1** and make notes. The websites will give you plenty of information. Follow the links to find out as much as you can.

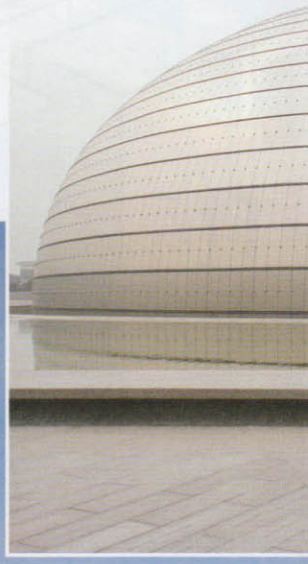
**Group A** www.gvshelters.com/

**Group B** www.monolithic.com/

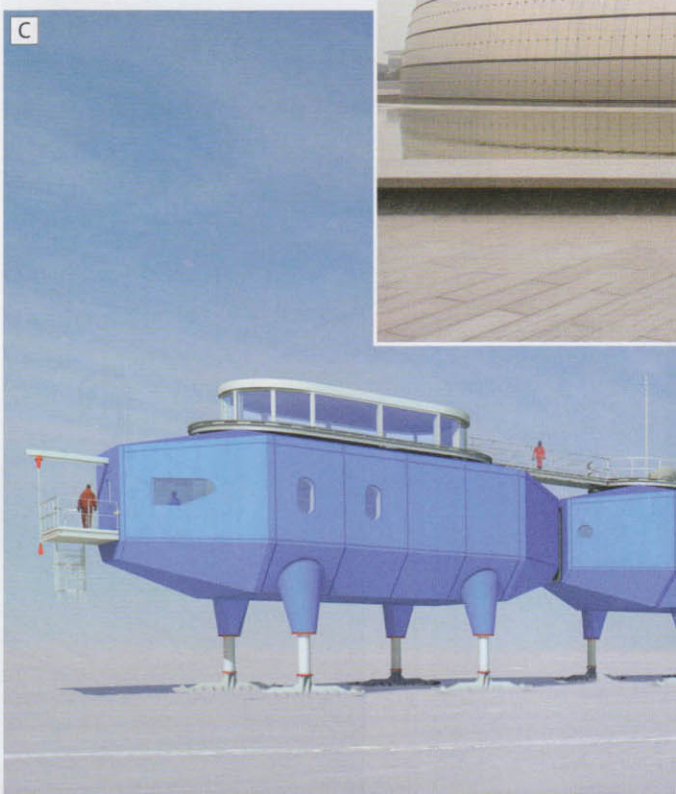
**Group C** www.antarctica.ac.uk/living_and_working/research_stations/halley/halleyvi/

**3** Form new groups of three with a person from A, B, and C. Tell your group what you have found out about the buildings.

B



C





## Checklist

**Assess your progress in this unit. Tick (✓) the statements which are true.**

- I can transfer information from a text to a diagram
- I know ways to describe obligation and necessity
- I can make inferences when I read
- My reading and listening are good enough to understand most of each text in this unit

## Key words

**Adjectives**
adaptable
convertible
self-sufficient
underground
well-insulated

**Nouns**
access
accommodation
condensation
environment
foundations
global warming
structure
ventilation

**Verbs**
construct
resist

Note here anything about how English is used in technology that is **new** to you.