

## Moles happy as homes go underground

- A** The first anybody knew about Dutchman Frank Siegmunds and his family was when workmen t through a field found a narrow steel chimney protruding through the grass. Closer inspection re of sky-light window among the thistles, and when amazed investigators moved down the side o came across a pine door complete with leaded diamond glass and a brass knocker set into an building. The Siegmunds had managed to live undetected for six years outside the border town Holland. They are the latest in a clutch of individualistic homemakers who have burrowed unde search of tranquillity.
- B** Most, falling foul of strict building regulations, have been forced to dismantle their individualistic return to more conventional lifestyles. But subterranean suburbia, Dutch-style, is about to beco respectable and chic. Seven luxury homes cosseted away inside a high earth-covered noise en next to the main Tilburg city road recently went on the market for \$296,500 each. The foundatio be dug, but customers queued up to buy the unusual part-submerged houses, whose back wall grassy mound and whose front is a long glass gallery.
- C** The Dutch are not the only would-be moles. Growing numbers of Europeans are burrowing belo create houses, offices, discos and shopping malls. It is already proving a way of life in extreme winter months in Montreal, Canada, for instance, citizens can escape the cold in an underground complete with shops and even health clinics. In Tokyo builders are planning a massive undergr to be begun in the next decade, and underground shopping malls are already common in Japan, v percent of the population is squeezed into 20 percent of the landscape.
- D** Building big commercial buildings underground can be a way to avoid disfiguring or threatening "environmentally sensitive" landscape. Indeed many of the buildings which consume most land cinemas, supermarkets, theatres, warehouses or libraries -have no need to be on the surface s not need windows.
- E** There are big advantages, too, when it comes to private homes. A development of 194 houses take up 14 hectares of land above ground would occupy 2.7 hectares below it, while the numbe would be halved. Under several metres of earth, noise is minimal and insulation is excellent. "V enquiries a week," says Peter Carpenter, secretary of the British Earth Sheltering Association, v builds similar homes in Britain. "People see this as a way of building for the future." An undergr himself, Carpenter has never paid a heating bill, thanks to solar panels and natural insulation.
- F** In Europe the obstacle has been conservative local authorities and developers who prefer to en sales with conventional mass produced housing. But the Dutch development was greeted with relief by South Limburg planners because of Holland's chronic shortage of land. It was the Tilbu Jo Hurkmans who hit on the idea of making use of noise embankments on main roads. His two bedroomed, two- bathroomed detached homes are now taking shape. "They are not so much b as in it," he says. "All the light will come through the glass front, which runs from the second floo the ground. Areas which do not need much natural lighting are at the back. The living accommod the front so nobody notices that the back is dark."
- G** In the US, where energy-efficient homes became popular after the oil crisis of 1973, 10,000 unc houses have been built. A terrace of five homes, Britain's first subterranean development, is un Nottinghamshire. Italy's outstanding example of subterranean architecture is the Olivetti residen Ivrea. Commissioned by Roberto Olivetti in 1969, it comprises 82 one-bedroomed apartments a maisonettes and forms a house/ hotel for Olivetti employees. It is built into a hill and little can b outside except a glass facade. Patnzia Vallecchi, a resident since 1992, says it is little different a conventional apartment.
- H** Not everyone adapts so well, and in Japan scientists at the Shimizu Corporation have developo "creation" systems which mix light, sounds, breezes and scents to stimulate people who spend l below ground. Underground offices in Japan are being equipped with "virtual" windows and mir

underground departments in the University of Minnesota have periscopes to reflect views and light. But Frank Siegmund and his family love their hobbit lifestyle. Their home evolved when he dug for his bakery business in a hill he had created. During a heatwave they took to sleeping there. "It's peaceful and so close to nature," he says. "Gradually I began adding to the rooms. It sounds strange, but so close to the earth we draw strength from its vibrations. Our children love it; not every child can be being watched through their playroom windows by rabbits."

## Questions 1-8

Reading Passage has nine paragraphs (A-I).

Choose the most suitable heading for each paragraph from the list of headings below.

Write the appropriate numbers (i-xii) in boxes 1-8 on your answer sheet.

Paragraph A has been done for you as an example.

**NB** There are more headings than paragraphs so you **will not use all of them**.

### List of Headings

- i A designer describes his houses
- ii Most people prefer conventional housing
- iii Simulating a natural environment
- iv How an underground family home developed
- v Demands on space and energy are reduced
- vi The plans for future homes
- vii Worldwide examples of underground living accommodation
- viii Some buildings do not require natural light
- ix Developing underground services around the world
- x Underground living improves health
- xi Homes sold before completion
- xii An underground home is discovered

Example	Answer
Paragraph A	xii

- 1..... Paragraph B
- 2..... Paragraph C
- 3..... Paragraph D
- 4..... Paragraph E
- 5..... Paragraph F
- 6..... Paragraph G
- 7..... Paragraph H
- 8..... Paragraph I

## Questions 9-14

Complete the sentences below with words taken from the reading passage.

Use **NO MORE THAN THREE WORDS** for each answer.

Write your answers in boxes **9-14** on your answer sheet.

- 9 Many developers prefer mass-produced houses because they 9.....
- 10 The Dutch development was welcomed by 10.....
- 11 Hurkmans' houses are built into 11.....
- 12 The Ivrea centre was developed for 12.....
- 13 Japanese scientists are helping people 13..... underground life.
- 14 Frank Siegmund's first underground room was used for 14.....

**Solution:**

- |         |                                      |
|---------|--------------------------------------|
| 1. xi   | 8. iv                                |
| 2. ix   | 9. sell (more) quickly               |
| 3. viii | 10. (South Limberg) planners         |
| 4. v    | 11. (road/noise) embankments         |
| 5. i    | 12. Olivetti employees               |
| 6. vii  | 13. adapt to                         |
| 7. iii  | 14. his bakery business//a cool room |