

ST00051543 A3 PO4500130838 10341320

- 1 Name **two** methods used to waterproof basements. (2 marks)

- 2 Describe **two** techniques used to clad timber-framed domestic buildings. (4 marks)

- 3 Identify **three** benefits of volumetric domestic construction techniques. (3 marks)

- 4 Explain why an architect might recommend a deep strip foundation (or concrete trench fill), shown in Figure 1, for a domestic property even though the ground is of good bearing capacity. (3 marks)

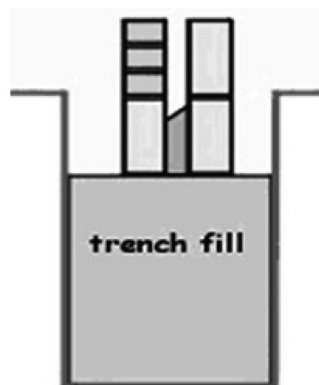


Figure 1

- 5 A historic building in a busy town centre is to be refurbished using modern methods of construction.

Explain how issues associated with this way of working can be overcome.

(4 marks)

- 6 Summarise the techniques used to provide fire resistance in a domestic building.

(4 marks)

- 7 Name **two** items of the existing built environment that should be in a site investigation report for a proposed development.

(2 marks)

- 8 a) Identify a project for which a diaphragm wall might be specified. (1 mark)

- b) State the reason why a diaphragm wall was specified for that project. (1 mark)

- 9 Describe **two** methods used to connect structural steel beams and columns. (4 marks)

- 10 A local authority intends to construct a primary school on land designated as contaminated.
Justify the time and expense required to remediate the land before construction can start. (3 marks)

- 11 Explain why laminated timber (glulam) beams and columns may be preferred to steel for the structural frame of industrial and commercial buildings. (3 marks)

- 12 A damp proof membrane (DPM) can be included either above (Figure 2) or below (Figure 3) the concrete in a solid concrete floor.

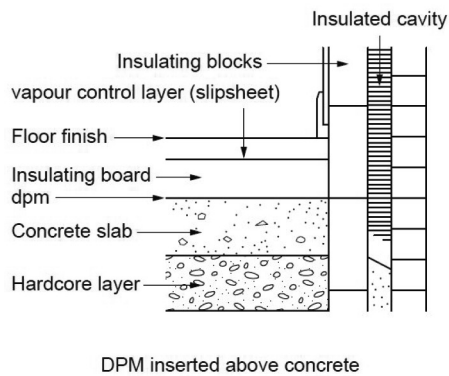


Figure 2

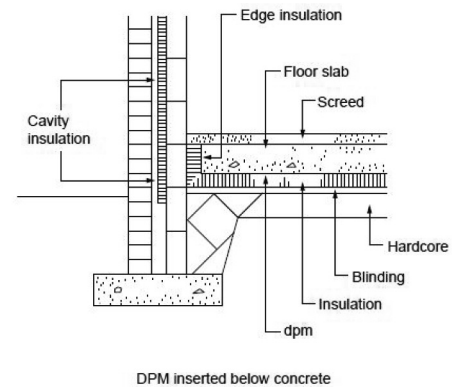


Figure 3

- a) Explain why it was decided to place the DPM below the concrete. (3 marks)

- b) Explain why placing the DPM below the concrete may put the integrity of the DPM at risk. (3 marks)

- 13 State:

- a) **two** hazards associated with the weather conditions on a building site (2 marks)

- b) **one** hazard associated with working in a confined space. (1 mark)

- 14 a) State **one** construction tool, or item of equipment, that may cause hand arm vibration (vibration white finger). (1 mark)

- b) Describe **two** ways of reducing hand arm vibration (vibration white finger). (2 marks)

- 15 Explain how a construction company can benefit from collecting statistics on fatalities, major accidents, minor injuries and near misses. (4 marks)

- 16 Explain why those responsible for the design and construction of buildings and structures should understand the main requirements of the Control of Substances Hazardous to Health (COSHH) Regulations. (4 marks)

- 17 Describe the role of **two** different construction professionals who may be part of the design team for a new build school. (4 marks)
- _____
- _____
- _____
- _____
- 18 Describe what is meant by the term TPO. (2 marks)
- _____
- _____
- _____
- _____
- _____
- 19 State the year in which the following items of legislation were most recently enacted. (1 mark)
- a) Town and Country Planning Act. _____
- b) Building Act. (1 mark)
- _____
- 20 Explain how the concept of Buildability is used in modern construction design. (5 marks)
- _____
- _____
- _____
- _____
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- _____
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- _____
- _____

21 Explain the role of the NHBC in the design and construction of new houses.

(5 marks)

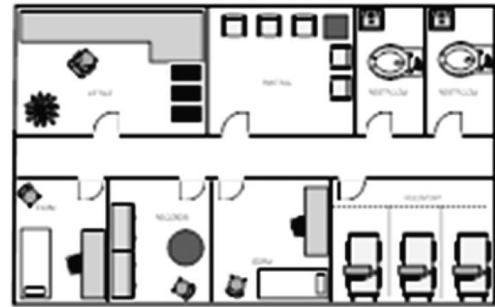
- 22 A property development company has purchased a large detached property that was constructed in the 1920s and which stands in its own grounds. The house is in good condition but has never been modernised. The intention is to convert the house into a residential nursing home and to also construct a new single-storey building in the grounds, on soil of variable load-bearing capacity. This building will function as a clinic specialising in the treatment and care of the elderly, both from the nursing home and from the wider community.

The local authority has requested that the developers consider the following issues.

- Sympathetic conversion of the old house.
- Care, comfort and privacy of the occupants.
- Access to and use of the buildings for elderly and possibly disabled persons.
- Use of modern, sustainable construction techniques to construct the clinic.
- Use of good health and safety practices throughout the project.



Property to be converted



Proposed floor plan for new clinic

- a) Evaluate **one** suitable structural form that could be used for the new build clinic. (3 marks)

- b) Justify the selection of a foundation to be used for the new build clinic. (3 marks)

- (12 marks)

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