

## 6. House Building and Design

### House building: Factors that influence choice of Location

#### 1. Budget

- Certain locations are more expensive to build than others e.g. urban vs rural
- The larger the site, the more expensive it is.
- Locations with desirable views are more expensive
- Access to amenities (public transport, shopping centres) increases the value of a site



#### 2. Amenities

- Proximity of the site to amenities (public transport, shopping centres, transport links) and available services such as sewage and water.

#### 3. Urban or rural setting

- Urban sites are much more expensive than rural ones and are in limited supply

#### 4. Building regulations

- Building regulations and the various requirements of the planning office need to be adhered to
- These will impact on the style and size of the house

#### 5. Planning permission

- Arrange a meeting with the planning officer to discuss the feasibility of obtaining full planning permission for a house on this particular site.



### House building: Factors that influence choice of style

#### 1. Budget

- Cost of materials (solid wood vs Laminate flooring; Stone finish vs Plaster)
- Cost affects size of house (furnishing, heating, lighting)
- Elaborate design features and finishes add extra cost (large windows etc.).

#### 2. Family Requirements

- When designing a house it is important to consider the needs of the family **now and in the future**.
- **Special Needs:** If a family member requires wheelchair access this will affect the layout of furnishing, height and choice of work surfaces, ramps instead of steps, single story, wide hallways and doorways.
- **Young Children:** Modern minimalist style may be unsuitable for families with young children as it is difficult to keep clean. Choose durable, easy to clean surfaces.
- **Elderly:** If elderly people are designing a house (e.g. a retirement home) they may require wide hallways, no steps, handrails, non-slip surfaces etc.

**3. Personal preference**

- Modern open plan vs traditional style with stone and timber.

**4. Site and location**

- The style of house should fit into its surroundings
- Planning guidelines state that homes should blend into the environment and not distract from it.
- The rock type used for stone walls/ finishes will be determined by the local stone e.g. limestone vs sand stone.

**5. Aspect of the site**

- The direction that the site faces
- Aspects affects the style and layout of the home
- South and west facing rooms receive more natural light – Living spaces should be planned so as to maximise the amount of natural light entering the house (Rooms position south, Large windows).

**6. Technological developments**

- Developments in technology will influence choice of materials and equipment within a house.
- Solar panels
- Electronic gates
- Underfloor heating
- Sensor lights, CFL's, Solar garden lights
- Centralised vacuum cleaners

**Exam Question:**

1. Elaborate on the factors that influence the design and building of a house under the following headings:
  - Location
  - House Style
  - Family Requirements
  - Technological Developments (26) (OL)
2. Describe 3 factors that might influence a person's choice of location when building a house (15) (OL)

**Factors that influence the design of a home****1. Cost**

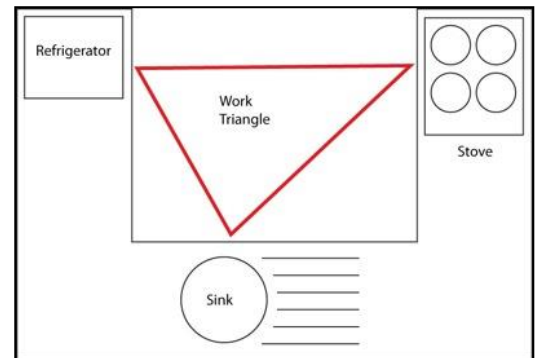
- Influence choice of materials and finishes (e.g. solid wood vs Laminate flooring; Stone finish vs Plaster)
- The more elaborate the design the more expensive
- Consider the cost of maintaining the building – painted walls vs stone

## 2. Family requirements

- **Number of family members:** Need adequate space, sufficient bedrooms, large kitchen/ living room, outdoor space. For large families it is important to have open spaces and avoid clutter
- **Special needs:** Bedroom and Bathroom downstairs, wide doorways and hallways for wheelchair access, turning space in rooms, adjustable appliances and work surfaces.
- **Future needs of family members:** Ensure the house can be adapted for possible future needs e.g. Downstairs office can be converted into an extra bedroom.

## 3. Ergonomics

- **Ergonomics is the study of peoples' efficiency in their environment.**
- Rooms should allow for easy movement and accommodate the natural flow of traffic.
- Spaces should be easy to clean
- Work triangle in the kitchen - can improve efficiency and work rate
- Design that allows minimum strain – appropriate height of sockets, light switches, work surfaces, seating, sinks etc.



## 4. Environmental factors

- A house should be designed and constructed to reduce the impact on the environment.
  - Use timber and stone instead of synthetic materials e.g. concrete, laminate
  - Install bio tanks to treat household waste to make it environmentally safe.
  - Using sufficient insulation can reduce heating costs and emissions from the house

## 5. Energy Efficiency

- Features of house design which can improve energy efficiency:
  - Install double glazed windows and insulation to minimise heat loss.
  - Choose sustainable methods of heating the house e.g. geothermal heating
  - Choose renewable sources of energy e.g. solar panels, wind turbines
  - Install energy efficient appliances
  - Orient main living areas facing south or west to make use of natural sunlight – light and heat



## 6. Technological developments

- Advances in technology influence the design and construction of homes.
  - Security features (Gates, Cameras, Sensor Lighting)
  - Appliances (central vacuum system)
  - Modern heating and lighting systems (Zoned heating, underfloor heating)
  - Sensor lights
  - Integrated sound and lighting systems
  - Easy to clean, stain resistant materials

## 7. Aesthetics:

- The exterior and interior design should be aesthetically appealing (pleasing to the senses)
- Usually depend on personal tastes
- Exterior should blend in with the surroundings, and with houses in the area
- Interior should be planned to make maximum use of space and light, good flow of traffic, no clutter, incorporate attractive design features.

## Exam Questions:

1. Elaborate on the factors that influence the design and building of a house under the following headings:
  - a. Family requirements (present/ future)
  - b. Technological developments (OL) (14)
2. Describe three ways in which the design and construction of a house can help reduce energy consumption. (HL) (15)
3. Discuss how aesthetic and environmental factors influence the design of modern housing. (HL) (16)
4. State and give examples of how (i) ergonomics (ii) technological developments and (iii) environmental factors influence house design/ construction. (HL) (18)
5. Give a brief account of 4 factors that should be considered when designing a family home? (OL) (16)