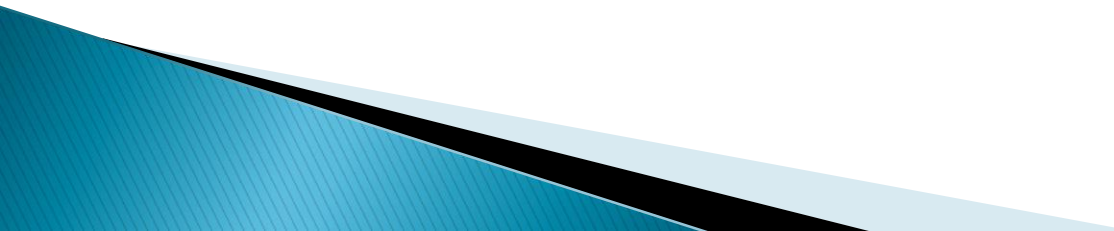




**Buildings and Human Habitation, Department of  
Environmental Health September 2016, 4th Year**

**Buildings                      and                      Buildings  
Elements**

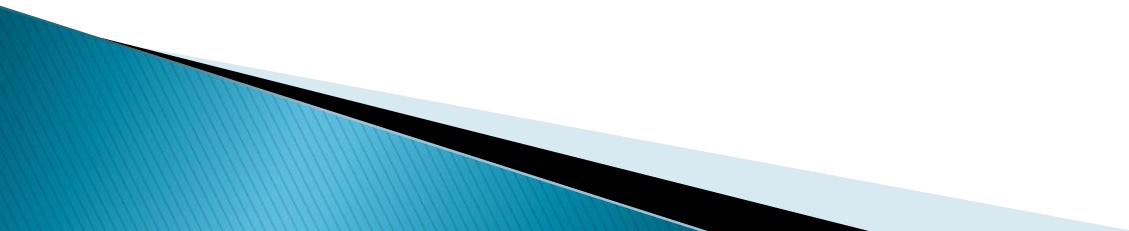
# Structure

- ▶ The meaning of buildings
  - ▶ Why do human needs building
  - ▶ The United Nations and- Human Habitation
  - ▶ Type of Buildings
  - ▶ Buildings Elements
  - ▶ Factors effecting human settlements
  - ▶ Building materials that could present a hazardous risk to occupants health
- 

# The Meaning of Building

Buildings can be defined as

“A structure wholly or partially enclosed within exterior walls, or within exterior or party walls, and a roof affording shelter to human habitation or use”.

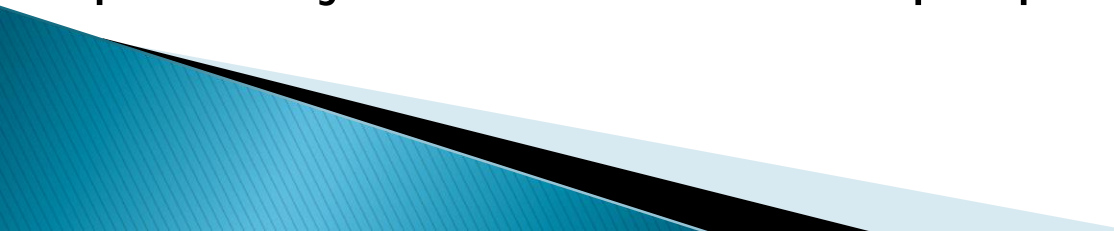


# Why do human needs building

Throughout history, buildings was looked at as a place where people live, work and entertain, in addition it is part of the people cultural and civilisation progress.


Looking to the civilisation in Iraq there are a beautiful buildings all over Iraq which made us proud of our culture.

Buildings are vary in their use, there are buildings to provide health care services to people such as Hospitals and Clinics, Schools and Universities for education, Houses to shelter human from climate weather and risk of danger, Shops and Supermarket to provide foods and services for human needs, Offices, Hotels and other Government and Public buildings to provide jobs and services to people.....etc..

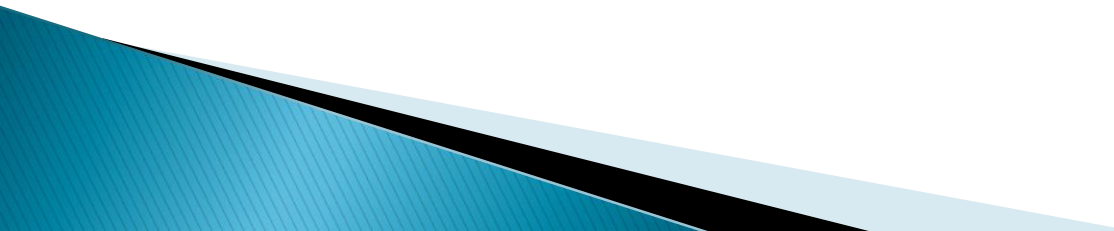


Cities have existed for thousands of years and can be traced back to the river valley civilizations of Mesopotamia (Iraq), Egypt, India, and China. At first, the people's settlements depended largely on agriculture and domestic cattle, but as these cities grew in size, they became centres for merchants and traders.

In Europe and the industrialised world, Urban growth, also known as urbanisation, accelerated dramatically with the advent of industrialisation some 200 years ago. At that time, large numbers of people moved to cities in search of jobs, mostly in factories. But the most rapid growth has taken place over the past 50 years.



While less than one-third of the world's population lived in cities in 1950, about two thirds of humanity is expected to live in urban areas by 2030. Most of that urbanisation is taking place in Asia, Africa, and Latin America. This changes in human settlement will result of less agricultural product in rural area and will increase the demand to build more buildings in urban areas.




# The United Nations and Sustainable Development Conference, Agenda 21 – Human Habitation


Under Section 1, Chapter 7, paragraph 7.4 stated

“The overall human settlement objective is to improve the social, economic and environmental quality of human settlements and the living and working environments of all people, in particular the urban and rural poor.

Such improvement should be based on technical cooperation activities, partnerships among the public, private and community sectors and participation in the decision-making process by community groups and special interest groups such as women, indigenous people, the elderly and the disabled.



These approaches should form the core principles of national settlement strategies. In developing these strategies, countries will need to set priorities among the eight programme areas, these are:

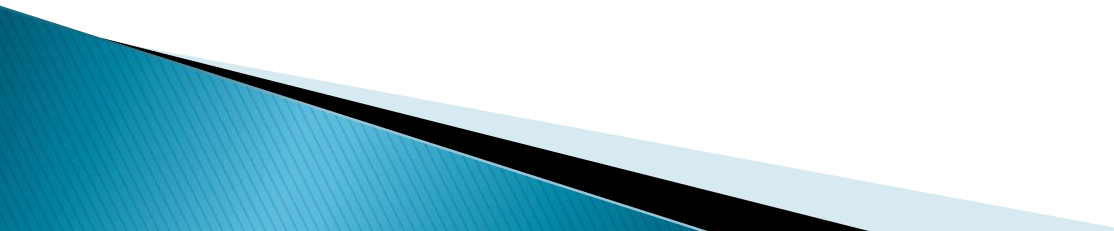
- a. Providing adequate shelter for all;
  - b. Improving human settlement management;
  - c. Promoting sustainable land-use planning and management;
  - d. Promoting the integrated provision of environmental infrastructure: water, sanitation, drainage and solid-waste management;
  - e. Promoting sustainable energy and transport systems in human settlements;
  - f. Promoting human settlement planning and management in disaster-prone areas;
- 



# Type of Buildings

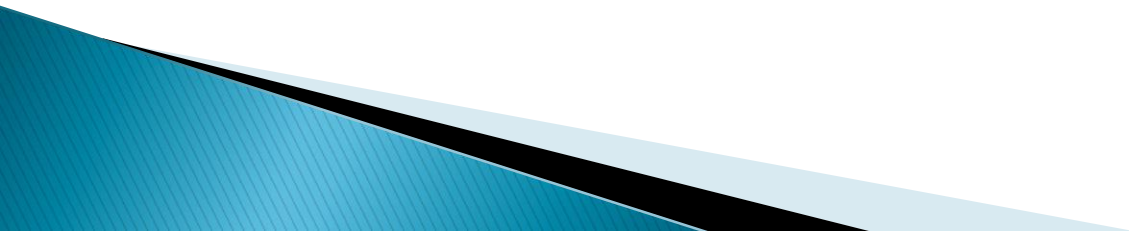
Buildings are varied according to their practical services, shape size and height. And they are markers for our sense of culture identity, aspiration and values.

Each building provide shelter to fill its purpose for occupiers needs, these are:

- ▶ Dwellings like House, Flat, Apartment and Loge,
  - ▶ Education buildings like Schools, Universities, Colleges, and Libraries,
  - ▶ Office buildings, Public and Private Sector buildings
  - ▶ Health buildings like Hospitals, Health Care buildings and Clinics.
- 

- ▶ Religious Worship buildings
- ▶ Shops
- ▶ Supermarkets
- ▶ Restaurants

Each of these buildings contributes to the human health and the environment.



# AL Kadhimiya, Combine Traditional and Contemporary in Baghdad, Iraq

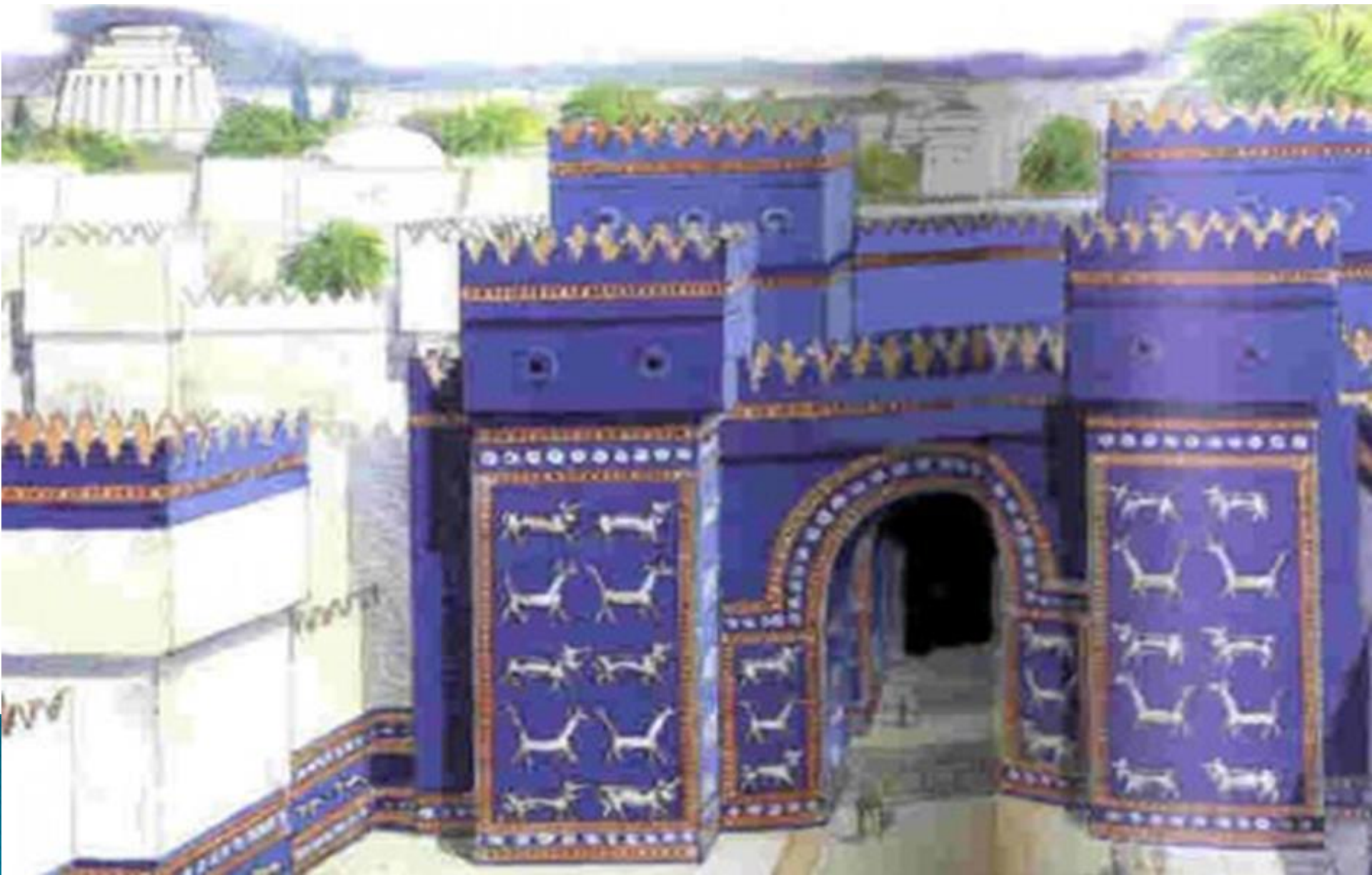




# Abbasy Palace in Baghdad



# Babylon





# A House



# Flats





# Apartments





# LODGE





# Low Rise Buildings

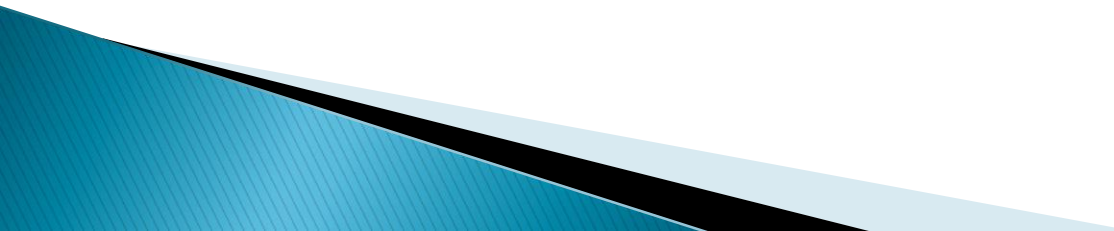




# High Rise Buildings



# Buildings Elements

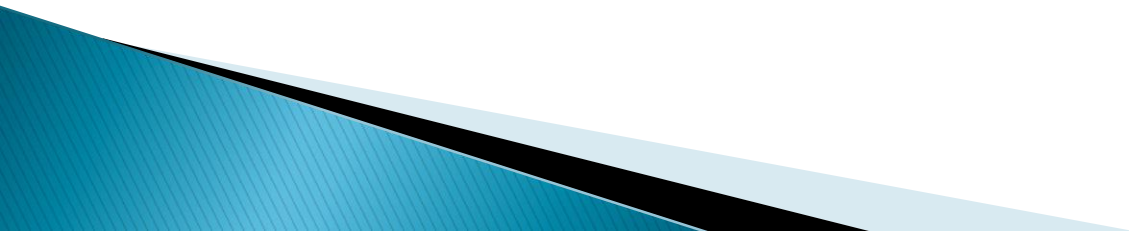
- ▶ Floors
  - ▶ Walls
  - ▶ Roofs
  - ▶ Stairs
  - ▶ Windows
  - ▶ Doors
  - ▶ Cladding
  - ▶ Plumbing and amenities
- 

# Key Building materials

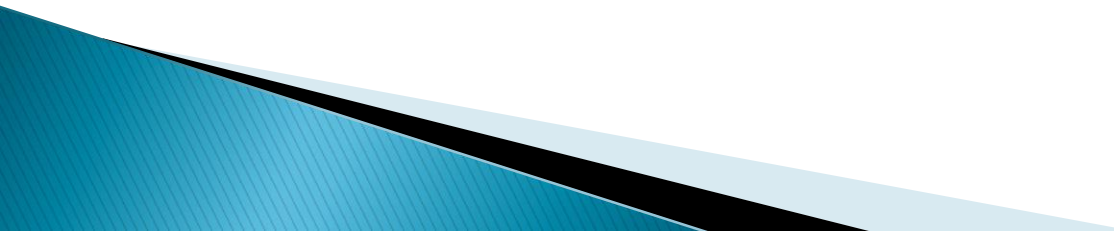
- ▶ Sand
  - ▶ Cement
  - ▶ Stones
  - ▶ Natural Marbles
  - ▶ Iron
  - ▶ Aluminium
  - ▶ Plaster
  - ▶ Wood
  - ▶ Asphalt
- 

- ▶ Brick
- ▶ Plastic membranes
- ▶ Tiles
- ▶ Concrete
- ▶ Steel
- ▶ Blocks

Building materials that could present  
a hazardous risk to occupants health



Hazardous building materials that could release harmful fibres and chemical substances that would need particular consideration are the following:

- ▶ Building materials containing asbestos
  - ▶ Non-asbestos insulation materials such as man-made mineral fibre (MMMf), fiberglass, and refractory ceramic fibre
  - ▶ Radon-containing materials e.g. concrete, gypsum plasterboard, stones and brick
  - ▶ Chromium VI (chromates) in cement mortar, concrete, and treated timbers
  - ▶ Mercury (fluorescent lights, switches, gauges)
  - ▶ Polychlorinated biphenyls or PCBs (liquid-cooled equipment, light ballasts, paints, electrical insulating materials)
- 



- ▶ Formaldehyde emission from urea–formaldehyde (UF) foam and wood–based products
- ▶ Lead–based paints
- ▶ VOCs from paints and thinners, furniture and other building materials
- ▶ VOCs from glues and solvents
- ▶ SVOCs (e.g. phthalate–esters, a salt or ester of phthalic acid) from plasticized soft plastics. Esters are commonly used as plasticizers in PVC; when ingested they can cause kidney and liver damage
- ▶ Polyaromatics (PAHs) (e.g. naphthalene, pyrene, Benz [a] anthracene, and benz [a] pyrene) from asphalt, Bituminous, damp proofing materials and creosote treated timbers, combustion (from coal and coke burners, diesel engines, cigarettes) tarry products contained in dusts, paving asphalt, melt bitumen applied on roofing, paving and road tarmac

- ▶ Wood preservatives (e.g. pentachlorophenol (PCP), chromated copper arsenate (CCA)) treated timbers
- ▶ Isocyanates – toluene diisocyanate (TDI) and methylene diphenyl diisocyanate (MDI) in sealants and adhesives, as un-reacted residues in polyurethane foams, in-situ spray polyurethane foam, polyurethane paints/varnishes; methyl isocyanates (MIC) can also be present in pesticides; others less in amount in industrial use are hexamethylene diisocyanate (HDI) and isophorone diisocyanate (IPDI)

- ▶ Fire retardants (polybrominated diphenyl ethers (PBDEs) and polybrominated biphenyls (PBBs)) containing materials
- ▶ Air-conditioning and cooling system chemicals such as Freon, ethylene glycol, and propylene glycol
- ▶ Other hazardous household chemicals such as pesticides, oils and lubricants, batteries, fuels, and compressed gases.

# Reference

- ▶ Environmental Design Technical Group  
<http://www.hfes.org/web/TechnicalGroups/EDTG.pdf>
- ▶ Agenda 21 – Chapter 7, PROMOTING SUSTAINABLE HUMAN SETTLEMENT DEVELOPMENT  
Human settlement objective  
<http://sustainabledevelopment.un.org/content/documents/Agenda21.pdf>
- ▶ Hazardous materials in buildings  
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