

UNIT-I INTRODUCTION TO HOUSING

1.1 Types of structural buildings

Agricultural buildings

Barn

A barn is an agricultural building primarily located on farms and used for many purposes, notably for the housing of livestock and storage of crops.

Farmhouse

Farmhouse is a general term for the main house of a farm. It is a type of building or house which serves a residential purpose in a rural or agricultural setting. Historically common were farmhouses which were combined with space for animals called a house barn. Other farm houses may be connected to one or more barns, built to form a courtyard, or each farm building was built separately.

Storm cellar

A storm shelter or storm cellar is a type of underground bunker designed to protect the occupants from violent severe weather, particularly tornadoes.

Shed

A shed is typically a simple, single-storey structure in a back garden or on an allotment that is used for storage, hobbies, or as a workshop.

Silo

A silo is a structure for storing bulk materials. Silos are used in agriculture to store grain (see grain elevators) or fermented feed known as silage. Silos are more commonly used for bulk storage of grain, coal, cement, carbon black, woodchips, food products and sawdust. Three types of silos are in widespread use today; tower silos, bunker silos, and bag silos.

Silo types

Cement storage silos

Tower silo

Bunker silos

Bag silos

1.2 Residential buildings.

Apartment block

It is defined a high-rise as “A multi-story structure between 35-100 meters tall, or a building of unknown height from 12-39 floors.

According to the building code of Hyderabad, India, a high-rise building is one with four floors or more in height.

Condominium

A condominium is the form of housing tenure and other real property where a specified part of a piece of a real is individual owned. Use of and access to common facilities in the piece such as hallways, heating system, elevators, and exterior areas are executed under legal rights associated with the individual ownership. These rights are controlled by the association of owners that jointly represent ownership of the whole piece.

Dormitory

A dormitory in the United States is a residence hall consisting of sleeping quarters or entire buildings primarily providing sleeping and residential quarters for large numbers of people.

Duplex building

A duplex house is a dwelling having apartments with separate entrances for two households. This includes two-story houses having a complete apartment on each floor and also side-by-side apartments on a single lot that share a common wall. By contrast, a building comprising two attached units on two distinct properties is typically considered semi-detached or twin homes but may also be referred to as a duplex.

Educational buildings

- College
- School
- Library
- Museum
- Boarding school

4. Government buildings

- Capitol
- City hall
- Consulate
- Courthouse
- Embassy
- Fire station
- Meeting house
- Moot hall
- Palace
- Parliament
- Police station
- Post office
- Prison

Industrial buildings

Brewery
 Bunker
 Castle
 Citadel
 Fort

Parking and storage

Boathouse
 Garage
 Hanger, of aircraft or spacecraft
 Storage silo

1.3. National housing policy.**NATIONAL HOUSING POLICY (NHP)**

India has an area of 328.73 million hectares; the population of India exceeds 100 crores.

In this, 75% of the people still living in villages. According to the statics 4 lakh, 87,170 villages are present.

Keeping in view of the above points the government provides 5 year plan.

8th five year plan are formed based on the basic criteria of improvement of villages.

The 8th five year plan combines any local agencies to achieve the objectives in this plan. In this, NHP is proposed.

In this policy the planning commission was formed to know the requirement of house , types of people, no of village house required and no of houses in urban area are collected and decisions are made.

This commission forms 5 sub commissions among them.

1. Housing development
2. Finance of the works
3. Deals with rural housing
4. Welfare schemes and
5. The problems of housing requirement.

The planning commission gives the following statics, showing the urban and rural requirements of housing.

The National Urban Housing and Habitat Policy aims

Urban Planning

- i) Encouraging State Governments, Urban Local Bodies, Development Authorities to periodically update their Master Plans and Zoning Plans which should, interlaid adequately

provide for housing and basic services for the urban poor.

- ii) Promoting balanced urban-rural planning by following the Regional Planning Approach, take the whole State/UT as a region, under the Town & Country Planning Acts in the States.
- iii) Planning of Mass Rapid Transit Systems (MRTS) at the city Metropolitan Planning Area and Sub-region levels.
- iv) Accelerating the pace of development of housing and related infrastructure.
- v) Creating adequate housing stock both on rental and ownership basis with special emphasis on improving the affordability of the vulnerable and economically weaker sections of society through appropriate capital or interest subsidies.

Increase flow of Funds

- vii) Promoting larger flow of funds from governmental and private sources for fulfilling housing and infrastructure needs by designing innovative financial instruments.
- viii) Designing suitable fiscal concessions in congruence with the Housing and Habitat Policy with appropriate monitoring mechanism to ensure that the concessions are correctly targeted and utilized.
- ix) Removing legal, financial and administrative barriers for facilitating access to tenure, land, finance and technology.
- x) Shifting to a demand driven approach and from subsidy based housing schemes to cost recovery-cum-subsidy schemes for housing through a pro active financial policy including micro-finance and related self-help group programmes.

Salient features of NHP

The housing development should be based on the exact requirement and the environment.

The housing design should be based on these important points.

NHP gives the technical things and advises towards construction materials.

For the individual investors various financial relaxations are given for the construction of their homes.

The tax benefits or expectations or freedom are given for the people constructing of their homes.

More house loans are released and people are encouraged to construct the houses.

NHP implemented various schemes for helping the people to fulfill the housing requirements.

NHP formed a National Housing bank for making various housing schemes.

This helps to get financial support. The housing schemes are constructed and developed based on the building bye-laws.

The NHP motivates the government to provide the water facility and drainage facility for various schemes.

1.4. Sustainable house

SUSTAINABLE HOUSE

“A sustainable house is one that uses energy and material more effectively both in production and operation while polluting and damaging natural systems as little as possible.”

Sustainable building refers to a structure and using process that is environmentally responsible and resource-efficient throughout a building's life-cycle: from siting to design, construction, operation, maintenance, renovation, and demolition. This requires close cooperation of the team, the architects, the engineers, and the client at all project stages. The Green Building practice expands and complements the classical building design concerns of economy, utility, durability, and comfort.

The common objective is that green buildings are designed to reduce the overall impact of the built environment on human health and the natural environment by:

- Efficiently using energy, water, and other resources
- Protecting occupant health and improving employee productivity
- Reducing waste, pollution and environmental degradation

Principles of sustainable Housing

State any two principles of sustainable housing. (Apr./May 2005, May/June 2006)

Sustainable housing is defined as the meeting of the needs of the person without compromising the ability of future generation to meet their own needs.

The important features or principles of sustainable housing is as follows.

The needs of the housing are to be satisfied or fulfilled for the present requirement without affecting the environment.

Sustainable development should ensure the environmental protection while taking the housing programs.

The sustainable development should ensure the maximum rate of resource consumption.

The waste materials should not be harmful to the society.

The sustainable development should minimize the reverse impacts on resources and the environment for future generation.

The should ensure the stopping of over exploitation of resources, reduce waste discharge and emissions and maintain ecological balance.

The sustainable development will support economical growth of poor countries and help to narrow/minimize the wealth gap between the nations and within the nations.

The sustainable development should follow an appropriate technology which should be adaptable, eco – friendly, resource efficient and culturally suitable. It involves mostly local resources and local labors.

The 3R approach should be followed. i.e., Reduce, Reuse, Recycle. This means reduce the usage of resources, using them again and again and redo the process to utilize again the resources to the maximum extent possible. This 3R

approach reduces the waste generation and pollution.

Environmental education and awareness should be created. this is possible by teaching the environmental subject from the school stage itself.

1.5. State level organization for housing

The following are the organization acting at state level for housing program

1. Tamilnadu Housing Board [TNHB]
2. Tamilnadu Slim Clearance Board [TNSCB]
3. Tamilnadu Police Housing Corporation [TNPHC]
4. Co-operative housing societies
5. Land development bank
6. Adidravidar housing development scheme [TAHDCO]
7. Building Centre [Located at collectorate of each districts]
8. Private housing finance

1. Tamilnadu Housing Board [TNHB]

TNHB was formed I 1961 to cope up with the increaing demand in housing sector all over the state of Tamilnadu due to urban growth leading to migration to urban areas in search of employment oportunities. It is also the principal town planning and city and Suburb development arm of the Tamilnadu Government. It under the Department of Housing and Urban Developmet (Tamilnadu)

Objectives

1. To clear all the slums in Chemical and to proviode self contained hygienic tenements.
2. To prevent the groeth of slams and encroachments
3. To prevent the eviction of slum dwellers by private oweners and to provide the slum families with security of tenure.

To provide basic amenities like water supply, street lights, storm water drains, sewer line, etc to the slum areas.

Policies / Strategy

The Three pronged strategy for developing / clearing slums followed by tamil nadu Slum Clearance Board are:

i) In – Situ plotted development and infrastructure improvement

Whereever In-situ plotted development is feasible, such slums are identified and taken up for in-situ improvement for provision of absic facilities to make the areas habitable and for provision of tenurial rights to the occupiers after getting the land transferred to the

tamilnadu slum clearance Board.

ii) In-situ tenemental schemes

The slums located in unobjectionable poramboke areas, wherein equitable distribution of space to all is not feasible, are cleared and tenemental (public housing) schemes put up.

iii) Rehabilitation and Resettlement scheme

Wherever neither tenemental nor insitu development is feasible, (as in the case of objectionable porambokes like water ways etc.,) Rehabilitation and Resettlement in tenements in nearby locations with necessary infrastructure is taken up. The cleared site is then restored to its original use.

Other Programmes

- i) Tamil Nadu Slum Clearance Board has provided support to individual housing schemes under different programmes like VAMBAY, Rajiv Gandhi Rehabilitation Package etc.,
- ii) To ensure holistic development and economic upliftment of the poor, the Board has spear-headed community development activities in the slums, under which it imparts vocational training and livelihood support, specially for the youth and women.

3. Tamil Nadu Police Housing Corporation (TNPHC)

Government of Tamilnadu with a view to raising the level of satisfaction in housing for police personal decided to construct houses for the Policemen and Police Officers. Accordingly this Company was registered under the Companies Act 1956, as a wholly owned Company of Tamil Nadu Government and came into being with effect from 13.4.1981. While the Company was gradually increasing its construction activities each year, the then Government based on the recommendations of Ramanathan Committee constituted to study the viability and usefulness of Public Sector Enterprises and other autonomous bodies. The activities of this Corporation were then transferred to the Tamil Nadu Housing Board.

4. Tamil Nadu Cooperative Housing Federation (TNCHF) Introduction

Cooperative Housing Department has at its command a vast network Housing Cooperatives both in Rural and Urban centres for providing housing finance for improving housing sock in Tamil Nadu. As many as 196 Taluk Cooperative Housing Societies are catering to the demands of rural people, while a network of 574 Urban Cooperative Housing Societies are meeting the housing needs in urban areas, with all such societies affiliated to the Tamil Nadu Cooperative Housing Federation Limited.

5. Tamil Nadu Adidravidar Housing and Development Corporation Limited (TAHDCO)

Tamil Nadu Adi Dravidar Housing and Development Corporation Limited (TAHDCO) were incorporated in 1974 under the Companies Act, 1956 with a objective to improve socio economic status in Tamilnadu. TAHDCO has facilitated Self Help Groups through financial assistance for employment ventures and to empower themselves by taking up a wide variety of economic activities such as.

National Schemes

TAHDCO acts as a State Channelising Agency in implementing the National Schemes of the Ministry of Social Justice and Empowerment, Govt. of India

The Schemes are:

National Scheduled Caste Finance and Development Corporation Scheme

National Scheduled Tribes Finance and Development Corporation Scheme

National Safai Karamacharis Finance and Development Corporation Scheme

National Scheme for Liberation and rehabilitation of Scavengers and Dependents

National Scheduled Caste Finance and Development Corporation (NSFDC)

Project assistance up to Rs.5 Lacs per beneficiary is given.

30% of the Project cost subject to a maximum of Rs.25,000/- is given as subsidy.

Balance up to 90% is given as term loan from NSFDC.

Assistance is given for any viable income generating activity to scheduled Caste and beneficiaries.

Margin Money assistance – 20% of the Project Cost (or) Max. Rs.1.25 Lacs

National Scheduled Tribes Finance and Development Corporation (NSTFDC)

National Scheduled Tribes Finance and Development Corporation provide financial assistance for schemes/projects for the economic development of scheduled Tribes.

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Assistance is given for any viable income generating activity to sanitary workers and their dependents.

National Scheme for Liberation and Rehabilitation of Scavengers (NSLRS)

Project assistance up to Rs.50,000/- per beneficiary is provided.

30% of the project cost subject to a maximum of Rs.10,000/- is given as subsidy.

Balance amount is arranged as loan from NSKFDC/Banks.

Assistance is given to scavengers and their dependents for any viable incoming generating activity as alternate source of livelihood.

6. Land Development Banks (LDB)

The special banks providing Long Term Loans are called Land Development Banks (LDB). The history of LDB's is quite old. The first LDB was started at Jhang in Punjab in 1920. But the real impetus to these banks was received after passing the Land Mortgage Banks Act in 1930's (LDB's were originally called Land Mortgage Banks). After passing this Act LDB's were started in different states of India.

Objective

The main objective of the land development bank is to promote the development of agriculture and increase the agricultural production. The CLDBs provide long-term finance to PLDBs affiliated to them or finance directly through their branches.

Structure

These Banks have two-tier structure

1. Primary Land Development Bank at district level with branches at taluka level.
2. State Land Development Bank. All primary Land Development Banks are federated into Central Land Development Bank at the State Level. In some States, there is "Unitary Structure" wherein, there is only one State Land Development Bank at the state level operating through its branches and sub-branches at district and below levels.

Primary Land Development Banks (PLDB)

These banks were originally organized to cover one or a few taluks in the district. At present they are eligible to cover one development block. All land owners are eligible to become members and borrow funds by

mortgaging their land. The principal borrower is enrolled as 'A' class member and others who have interest in the mortgaged property are admitted as 'B' class members.

Central Land Development Bank (CLDB)

These members of the CLDBs are the PLDBs and a few individual promoters. It grants long-term loans to agriculturists through the PLDBs and branches of CLDBs. It raises funds through floating debentures, which are guaranteed by the State Government. When PLDB obtains loan from the CLDB, it assigns the mortgage deeds obtained from the borrowers to the CLDB. The CLDB floats debentures and raises funds against the security of these properties. The NABARD and LIC subscribe for the debentures in large amounts and the former also extends refinance assistance to LDBs.

1.7. Structural building types

1. Agricultural buildings

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A barn is an agricultural building primarily located on farms and used for many purposes, notably for the housing of livestock and storage of crops.

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Objectives

4. To clear all the slums in Chennai and to provide self contained hygienic tenements.
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Policies / Strategy

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Wherever In-situ plotted development is feasible, such slums are identified and taken up for in-situ improvement for provision of basic facilities to make the areas habitable and for provision of tenurial rights to the occupiers after getting the land transferred to the Tamilnadu Slum Clearance Board.

ii) In-situ tenemental schemes

The slums located in unobjectionable poramboke areas, wherein equitable distribution of space to all is not feasible, are cleared and tenemental (public housing) schemes put up.

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1.9 Central Government Organization for Housing

1. Housing Urban Development Corporation (HUDCO)

The was started in the year 1970. In the middle of 1971 it was functioning. The primary aim of HUDCO is Housing, development, improvement and urban development. It acts as an apex body [forum] to decide the fund, investment

required for satisfying the primary aim. HUDCO introduced new schemes for development of the investment. They are as follows

Document shares

Compound interest income scheme

Money doubling scheme in 60 months

Monthly income scheme

The funds generated by above methods are used for various HUDCO schemes. Housing agencies, municipalities, public concerns, private agencies which are not coming under the director control of government utilizes the HUDCO funds.

HUDCO scheme benefits many towns and villages as per 1995 and 1996 census.

HUDCO spent rupees 9043 crores for 10556 schemes of workers. They charged 6-13.55 interest for its loan based on the method for distributing the loan on the agency.

Another primary aim of HUDCO is financing for an agency supplying the construction materials.

HUDCO gives technical guidance and advices for different agencies. It also implement low cost housing schemes, shopping complex, township and urban development schemes, construction of road, water supply and drainage are also given primary importance by hudco.

Some of the schemes introduced by HUDCO are as follows:

- House
- Rural housing
- Land requisition
- Construction of community welfare centre
- Technical improvement
- Improvement of environment conditions of slums or slum areas
- Basic health or hygienic conditions
- Staff housing development
- Improvement of affected people
- Housing for poor people in particular people in hills / tribes

HUDCO divides the people into four categories

- Economically Weaker Section [EWS]
- Low Income Group [LIG]
- Middle Income Group [MIG]
- High Income Group [HIG]

The amount of loan granted, repayment period, interest rates for the above categories HUDCO allocate the find as follows

- EWS – 30%
- LIG – 25%
- MIG – 25%
- HIG – 20%

2. Housing Development Finance Corporation [HDFC]

This was started in the year 1976 and run by financial assists of the government HDFC develops housing schemes from the fund collected through the public. It generates the fund by equity shares, insurance premium, and bank loan as per the approval of reserve bank.

It grants the loans for purchasing an immovable property [land and building] and selling it. For shopping complex and commercial centers also bank loans are granted.

It formulates easy installment and repayment schemes to collect more money for house loans. It suggests guidance and advice for selecting a site and purchasing a flat. HDFC also introduced new housing schemes for their employees. It has several banks and collection centre.

3. Life Insurance Corporation [LIC]

LIC provides financial assistance for housing. LIC started a housing finance in the name “LIC House Finance Limited” in the year 1989. These functions with 67 branches and 35% of market share.

It has spent 5500 crores for 30 lakh houses. It simplifies the method of getting a house. It grants loans for the LIC policy holders to construct a new house, for extension of a house, for repairing a house and from purchasing a flat or built – up house or apartment.

4. National Housing and Habitat Policy [NHHP]

In the year 1998, on the eve of the 12th Lok Sabha elections, the BJP and its Alliance partners brought out a ‘National Agenda for Governance’ for ushering in a dynamic economic growth to bring in quality life for masses. This agenda included issues like Governance, Eradication of Unemployment, Housing for All etc.

Aim of NHHP is to provide “Housing for All”, especially benefiting the deprived and the poor.

Tamilnadu municipality byelaws and building rules (1972)

1. Permission

- b. For the construction, reconstruction, addition or alteration of a building the permission will not be granted if the clearance between the building and the aerial lines is less than.
- 1.5m for low tension and 1.75 m for high tension lines measured horizontally in case of accessible portions of the buildings
 - 1.25m for low and high tension lines measured horizontally in case of inaccessible portions of the buildings.
 - 2.5m for portions of the buildings not accessible to the portions measured vertically.

2. Space of buildings

Where the street at anyplace is less than 3.75m in width, the building should not be built within 2m from the center point of the street.

No other structure than the steps, fence is permitted in the space between the building and edge of the street.

The doors and window shutters should not open Outward Street where the street is 3.75m or more width and the buildings is built along with edge of the street.

3. Dimensions of rooms

A height of an average is not less than 2.75 m and 2.1m at any point measured from top surface of the floor to the underside of the roof.

A clear superficial area is not less than 7.5m²

A width is not less than 2.5m

Bathroom area is 1.8m² (1.52 x 1.2m)

The water closet or toilet shall be 1 m² (1.2 x 0.9m)

The bath cum water closet shall be 2.7m² (1.82 x 1.52m)

4. Ventilation of buildings

Every room intended or used for human habitation (human activities) should have windows and ventilators

The area of ventilation should not be less than 1/8 floor area or carpet area

Every domestic building constructed for human habitation should have at least one side abutting for a length of not less than 2.5m on an open space either internal/external. Such open space shall not be less than 1.75m in width.

Every open space either internal or external should open to sky no construction is allowed in the open space area.

For bath and toilets the area of windows or ventilator should not be less than

0.5sqm.

1 sqm = 10.75 sq.ft

0.5 sqm = 5.38 sq.ft [3' x 2' = 6 sq.ft]

5. Minimum width

The doorways, windows or passage should have a minimum width of 1m. The door of kitchen, bath and toilet should not be less than 0.6m clear width.

6. Chimneys

Chimneys, flush and sanitary appliances or convenience are to be provided properly in the building.

7. Staircase**a. Width of the stair**

The clear width of the stair excluding hand rail shall not be less 500 mm.

b. Head room [Height from floor to roof]

The headroom should be at least 2.1m measured perpendicular from the nosing (projection on step)

c. Tread and Riser

The riser shall not be more than 175mm and the tread shall not be less than 250 mm. the sum of two risers and the tread shall not be less than 600mm and not more than 625mm. in one flight should be not be any variation in rise / tread. No stairs should be permitted to cut across a window.

d. Landing

The height between the landings shall not be more than 3.75 m

e. Rails

The handrails shall be placed at the height not less than 750mm and not than 1000mm above the projection of step.

f. Ventilation

The passage giving access to the staircase width shall not be less than the stair width. In the passage gives access to more than 1 stair its minimum width shall be equal to the width of the stair +1.5 of total width of the remaining stair width.

g. Passage

Passage width should not be less than stair width. If the passage gives access to the more one stair. Its minimum width shall be equal to width of the stair. The State and Central government building are exempted from these rules.

1.10 Documents to be submitted for approval of building in municipality

The person who intends or wants to construct, reconstruct or alter or making additional construction in the existing building have to applied for approval of the buildings.

Plan

Survey filed number, street ward, taluk and district.

Signature of applicant and license building surveyor

Copy of land document

Estimate of building construction.

Documents to be submitted for approval of plan

Plan (Floor Wise)

Elevation (Front)

Sectional View (Floor Wise)

Site Plan

Key Plan

Details to be furnished in plan

Jointary details (Doors, Windows, ventilation, Opening)

Area details (Site area, Floor area, Plinth area)

Boundary lines in different colors.

UNIT-II

HOUSING PROGRAMS

2.1 Modern building / planning

Modern buildings are planned for specific purpose by giving consideration for site, climate, character and style. The Planning of housing schemes shall follow the existing laws and principles applicable to a wide variety of buildings. Based on creativity of an architect or an engineer those laws and principles within the frame work can be developed. The major factors considered for the planning concept of housing schemes or such as aspect, roominess, flexibility, grouping, privacy, elegance.

Aspect

The natural sunshine, wind and scenery should be utilized for comfort, hygiene and cheerfulness to the uses of buildings or housing schemes. The room which receives air and light from a particular direction then it is said to have aspect of that direction. For eg. A kitchen should have an eastern side aspect so that the morning sun would refresh, purify the air and remains cool in the later part of they day. The living room may have southern or south eastern aspect while the bedrooms have west or southwest aspect.

Roominess

Roominess is defined as the method of getting maximum benefit that is derived from minimum possible dimension of the room. For example square room of size 3.6X3.6m, a table of size 1.2X1.2m is kept for a purpose. Here only a little space is available around the table. In a rectangular room of size 4X3.2m the same 1.2X1.2m is kept. In this case in the same area of room we have more space for additional use or utilization such as shelves or keeping other things, etc. it is advisable to have a length to breadth of rooms proportionate in the ratio 1:5:1 to 2:1.

Flexibility

Flexibility means use of space for any required purpose conveniently or with alignment. For Ex.

- 1) Separating the living room and dining hall with removable partition like aluminum panels, wooden panels, and prefabricated wall panels.
- 2) Constructing the house in front of the site and leaving sufficient space in the backside for future extension of house.

Grouping

Grouping is defined as maintaining the relationship between the spaces of rooms at

the planning stage itself. For eg planning thr during room near to the kitchen. So the cooked item can be easy access towards sanitary units. Location of store room near kitchen leads to easy access. Similarly administrative section and office are grouped together. Similarly production the quality control, storage and dispatch section is grouped near to each other.

Privacy

Privacy means the nature of free feeling of usage of space. These are of two types. Privacy is ensured by carefully planning the entrance, passage, pathways, etc. in case of housing scheme, the privacy should be ensured by providing all the facilities separately to all the house sites.

(a) Internal privacy:

It means the internal parts of the building have the required privacy from the other part/other rooms.

(b) External privacy:

It means the provision of the potigo, garden, open space, public streets, roads and neighboring buildings.

Elegance

It is the effect produce by the elevation of the buildings and the general layout of the housing scheme. Symmetry gives elegance always. The elegance depends on the character and purpose of the buildings. The elegance incase of housing schemes is brought out by the wider roads and streets, the required proportionate size (length and breadth) of site/plot.

2.2 CONTENTS AND STANDARDS FOR HOUSING PROGRAM

The contents and Standards for housing program contain the following:

1. Cost of the land
2. Availability of public utility services such as water centricity and sewage disposal.
3. Access to parks and playground
4. Agricultural potentiality of the land
5. Contour of land
6. Distance from place of work
7. Ease or way of drainage
8. Location with respect to schools and colleges and public buildings
9. Nature of use of adjacent areas
10. Transport facilities
11. Wind velocity and direction
12. Annual rainfall

Height

The height of the building in the schemes should be in proportion with width of the street or road.

Location

The location of the residential building in housing scheme should be free from nuisances like dust, smoke and smell, moist. The location of the building should be nearer to the means of transport for schools, hospitals, markets.

Orientation**Define Orientation. (May/June 2010)**

The building in the housing scheme should be suitable orientation with respect to rain, sun, wind.

Parks

The building should be located nearer to parks and a placed with easy accessibility with trees and plants should be available for the children without crossing main roads.

Privacy

The housing system should provide maximum privacy to the users.

Security

The buildings in the housing scheme should have safety and security against theft and fire. For this purpose a strong room may be provided for the storage of valuable items.

Space

Floor area as well as cubical contents (length X Breadth X Height) of the buildings should be proportioned with number of persons likely to use the buildings. As per the standard floor area per members. The standard floor area is 4.65m^2 per member and cubical content is 8.5m^3 per member.

Utility Services

The building should be provided utility service like electricity, water, drainage and transport facilities at reasonable cost.

Ventilation

Define Ventilation. (May/June 200)

A roof of the building should be fully ventilated and each room should get enough air and light.

2.3 SITE ANALYSIS

Explaining the context, objectives and contents of Sits and Services. (May/June 2006, May/June 2007)

Make a comparative study of neighborhood and site and services programmes with reference to their contents and standards. (Apr./May 2007)

It is defined as the analysis of the site in all respects before the construction is started. Normally trial pits are taken at various places of the site to know the different kinds of soil and its characteristics. Based on the soil available, a particular type of foundation is adopted. The hard stratum of soil on which the foundation is adopted. The hard stratum of soil on which the foundation is laid is checked for its bearing capacity. The bearing capacity of soil is tested at the side by conducting a plate load test. Similarly the site on which the construction is developed is checked for the facilities like water supply, drainage, transport and communication facilities.

The site should not be a place where, the waste materials are dumped.

The site should not be water logged area, i.e., during the rainy season the water should not be stagned on its surface. Similarly the rain water nearby areas should not enter to the site or flow the site to the nearby places. The site selected for construction should be free from air pollution, sound and water pollution. The site should have the accessibility to all nearby places for all its development. The site should not be located nearer to quarries (rock quarries) and industries.

2.4 SITES AND SERVICES

Define the concept of site and Services.(Apr/May 2005)

These are the facilities provided to a site before a particular construction is made. The services to be provided for sites are called sites and services. These services are also called public utility services. The services included the following.

Educational institutions (near by availability)

Water supply and Power supply (electricity)

Fire stations

Gas

Hospitals and health centre's

Local industrial units

Markets and shopping centers

Parks

Play ground

Public buildings

Public transport facilities

Roads and street services

Proper roads

Refuse or waste disposal

Sewage disposal

Drainage arrangement

Strom water drainage

Provisions of shops/ stores

Street lightning

Communications/telephone lines and facilities

2.5 NEIGHBORHOODS / NEIGHBORHOODS PLANNING Define the concept of Neighborhoods. (Apr/May 2005).

Explain the context, objectives and contents of Neighborhood. (May/June

2006, May/June 2007)

Explain Neighborhood planning and its importance. (May/June 2010)

The concept of neighborhood planning is fundamentally American concept/ idea. The principal of neighborhood is one is planning for the society and not for an aggregate or group of houses generally the nature of human beings is to be friendly with neighbors and to share their interest.

Neighborhood planning is defined as the planning of expansion of the existing housing or layout near by the / neighbor to the existing layout or housing scheme.

In big towns the neighborhood planning is difficult due to the following reasons.

- (i) The neighbors are not dependent on one another, company and help because city life gives a wide variety of facilities and entertainment.
- (ii) The neighbors may not have common modes or ideas and habits of living

Neighborhood planning is to form various physical units of residential areas in which people live with a rank of a life style live.

2.6. OPEN DEVELOPMENT PLOTS

**What do you understands by the term Open Development Plots?>
(Apr/May 2005)**

The available open land is suitable subdivided into various plots/ sites in a housing scheme and allotted to various persons by making development in the plots.

This is called as open development plot/open plot scheme. The developments are made in the plots include

Site clearance

Site leveling

Protection of plots by providing fence

Security arrangements

Garden maintenance

Plot/site maintenance

Mainly the open development of plots is allotted to slum people or slum dwellers. The precautions to be adopted in the open development plots are

The area of the plot should not exceed 20-25m²

The possible alternative designs for the construction of small houses may be provided

The plots may be given long term lease with necessary condition for cancellation and reentry incase of terms of lease documents.

The self help combined with use of locally available materials and methods of construction

should be encouraged

2.7 CO-OPERATIVE HOUSING

Explain the merits and demerits of co-operative housing. (Nov/Dec 2012)

the history of co-operating housing movement in India is traced in the year

1912. This was seen that the co-operative act was formed.

Bombay took the first initiative in this movement and the first co-operative housing society known as 'saraswat co-operative'. This was registered based on the co-partnership system in Mumbai in 1915. Later the other states adopted the idea of housing society. Number of housing society is largest in maharashtra about 5031, in Gujarat about 3661. This two states account for more than half of total number of societies about 13879 in the country.

Co-operative Housing Soccity

A group of house seeking persons combined and form legal body is known as a co-opertive housing society. The society is registered on the co-operative act and works within the rules and regulations imposed and framed by its member. Its working is examined and supervised by government department. The houses constructed through housing society are generally good, decent within the financial limit. The services and facilities provided are better and lead to indirect benefits such as improved hygiene, health and education, etc. mainly the low income people are benefited mostly by their societies.

Objectives of Slum Clearance

Express any tow basic concepts on which slum housing programs are formulated. (May/June 2007)

To bring down the disparity difference in the living standards of the people of various places

To prevent the occurrence of epidemics in the town/city

To provide the obsolute basic minimum standard of essential amenities for healthy living

to remove the ugly spots/slums from the may of town/city

Methods of Slum Clearance

Compare, in a tabular statement, contents and standards of any four slum housing programs implemented in Tamil Nadu. (May/June 2007)

1) Complete Removal Method

In this method badly constructed houses are completely demolished and those which are really good are retained. The open spaces are used for road widening, providing recreation, building of new houses of approval standards.

Advantages

Permanent remedy for the slum people

Good health condition is maintained

Good living environment is created

Disadvantages

Costlier method

The people are to be provided an alternative housing facility

Consideration

The following points are important when the slum clearance is done

The degree of public health hazards involved

An economic potential of the land should be maintained

2) Improvement Method

Certain slum areas in which poor drainage arrangement and insanitary environment are present cannot be demolished. They can be improved by filling of low ground, modification drainage arrangement, removal of unwanted structure.

Advantages

Minimum expenditure is involved

The people can live in the same area

Disadvantages

The improvement/modification is required often

The people are disturbed when improvement is done frequently

UNIT-III**PLANNING AND DESIGNING OF HOUSING PROJECT****3.1 SITE PLANNING / DESIGN PROCESS**

Planning and design occur as a process, by which we mean that they follow a logical sequence of actions or events that must be carried out to arrive at a viable solution. It is a multi-disciplinary problem –solving operation often involving architects, landscape architects and engineers, and frequently may require input from physical scientist as well to address environment issues. It require a logical objectives for some steps, but also allows room for subjective design interpretation at others.

There are several notable models from which we can draw to understand the basic components of the site planning and design process. Kevin Lynch outlines an eight-stage site planning cycle (see Fig. 1) that includes:

1. Defining the problem
2. Programming and analysis of site and user
3. Schematic design and the preliminary cost estimate
4. Developed design and detailed costing
5. Contract documents
6. Bidding and contracting
7. Construction
8. Occupation and management (Lynch 11)

John Simonds outlines a six-phase planning-design process that applies to architecture, landscape architecture, and engineering, This process (see Fig. 2), is organized as follows:

1. Commission
2. Research
3. Analysis
4. Synthesis
5. Construction
6. Operation

There are many variation on these models. They differ essentially in the breakdown of component phases and some, such as Simonds, extend the process to include preliminary contractual agreement and post-construction operations.

1. Research and Analysis Phases:

In this process, the designer can use this general goal statement plus the identification of the site to begin collecting information relevant to the site and the

surroundings area and compiling it in a form in which it can be mapped. This data is then analyzed in terms of its implications for development of the site for stated purpose.

2. Program Development:

The development of the program is the bridging step between the analysis and the synthesis or design phases.

3. Design Phase

a. Conceptual Design

Conceptual design begins with functional diagram in which we explore the relationships of program elements and activities. This is first done as “ideal” or non-site related diagrams to establish the best abstract relationships among the various components of the project program. This is essentially a diagrammatic exploration in which the designer may move through a series of alternative arrangements until he/she achieves a solution which maximizes the positive relationships and minimizes the number of conflicts.

c. Site Plan / Master Plan

Presuming that the project is to go forward, the designer refines the development of the preliminary plan, giving precise form, dimension and indication of materials to the proposed elements. In other words, he/she precisely locates buildings and paved surfaces, delineates ground forms and planted areas, and indicates necessary utilities.

3.2 FORMATION OF HOUSING PROJECT

The housing projects are formulated under the following five categories

1. Detached / individual house
2. Semidetached houses (Twin houses)
3. Row / Line houses
4. Flats / Apartments
5. Sky scrapers / High rise building

3.3 SITE ANALYSIS

Site analysis is an element in site planning and design is an inventory completed as a preparatory step to site planning, a form of urban planning which involves research, analysis, and synthesis. It primarily deals with basic data as it relates to a specific site. The topic itself branches into the boundaries of architecture, landscape architecture, engineering, real estate development, economics, and urban planning.

Site analysis is defined as the analysis of the site with respect to many factors involved in construction. It is the analysis of various features or advantage available for a site.

3.4 ELEMENTS OF SITE ANALYSIS

Numerous elements go into a given site analysis. These elements include location, neighbourhood context, site and zoning, legal elements, natural physical features, man-made features, circulation, utilities, sensory, human and cultural, and climate components. The following elements typically are considered in most sites:

Location: The site should be related to 1major streets or landmarks previously existing. Aerial photographs help in this assessment stage. There should be documentation of distances and time from major places. This should be completed by either driving or walking the distance first-hand.

Neighbourhood context: Zoning of the neighbourhood is important and information of this type can typically be found at the municipal planning department of the site. Numerous issues at this stage require direct observation. Features of this sort include architectural patterns, street immediate surroundings of the site. The reaction of the surrounding buildings towards the site and people moving around should be analysed. Other important components of the neighbourhood context include an analysis of existing paths (pedestrian, cyclist, and vehicle), landmark and nodes. Landmarks are distinctive sites that provide way-finding for people in the area, and which define the character of a neighbourhood. Nodes are key public gathering palces that encourage people to linger and socialize.

Size and zoning: Site boundaries can be located by either verifying the dimensions physically or contacting the country tax assessor's office. Zoning classifications, set-backs, height restrictions, allowable site coverage, uses, and parking requirements are obtained zoning classifications from a zoning map, which can be located from the city planning department.

Infrastructure, social, and political boundaries.

Legal : Typical legal information can be obtained from the dead to the property, The deed is held by the owner of the title insurance such as the property description, present ownership, and the governmental jurisdiction the site is located in, and the city or county.

Natural physical features: Most of this information will be derived from the topographic features on the site. A contour map of this magnitude can be located from the survey engineer. Drainage problems as well as existing natural features of trees, ground texture, and soil conditions on the site should be directly observed.

Man made features: Features located on the site such as buildings, walls, fences, patios, plazas, bus stop shelters should be noted. The site and location of such features should be

directly measured, Documentation of existing historical districts should be made, some of which may already have reports completed. Locating this information can be done through the municipal planning department for the site.

Circulation: the uses of streets, roads, alleys, sidewalks, and plazas are important in this inventory step. It is not necessarily an analysis of these circulation gateways.

Utilities: Information for utilities concerning the site can be found through the utility departments and companies in the local area. Generally this company has a print of the drawing of this information needed. Information in this print includes the location of all utilities and their locations around or on the site itself.

Sensory: Much of the sensory information collected will be done through firsthand experience. This type of information is obtained from sketching and photographs (sometimes aerial photographs). Direct observation of other sensory elements of noise, odors, smoke, and pollutant areas must also be completed.

3.5 LAYOUTS

Enumerate various components of layouts design. (Apr./May 2006) What is layout design? (Nov./Dec 2012)

The layout is defined as an arrangements of housing sites or blocks in an open land with all facilities like roads street, drains, water supply play ground , park, recreation space, power supply.

In a state the director of town and country planning is the compliant authority to approve the proposal layouts in villages, panchayats and municipalities. In Chennai metropolitan development authority (CDMA) and industrial development corporation hyderabad are the regulatory bodies.

In hyderabad urban development authority is approving the lands.

National Building Code (NBC) Recommendation of Layout

The layout should be draw for the scale of not less than 1 : 1000 (Representative factor 1cm – 10 m all plots or sites in the layout should have a public or private means of access (road).

The layout should be accessible by a public street of width not less that 6m. In residential and commercial zones the layouts of land measuring 0.3 hectares or more.

In following minimum provision for community open space should be made.

15% of the area of layout for open space.

0.3-0.4 hectare for 1000 persons.

In big layouts the following facilities should also be provided

Facility	Requirements
Education facility	For construction of primary, high school and colleges, etc
Health facility	Construction of clinic, suspension hospitals, health centers etc
Commercial facilities	Construction of shops, vegetable markets, banks, etc
Communication	Construction of post office, telegram office, etc

Essential service	Construction of police station, fire station, power station, pumping station for water supply, sewage disposals plant etc
Social, community and cultural facilities	Construction of buildings for social welfare clubs, theatres, etc

Establishment required	of total area of layout required
Schools	6-8 %
Shops	1-2 %
Roads	25 -30 %
Recreation spaces	10 %

Amenity required	Scale of provision
1. Nursery school	1 for every 4600 population
2. Primary School	1 for every 4000 population
3. High School	1 for every 16000 population
4. Degree college	1 for every 80000 population
5. Subpost office	1 for every 10000 population
6. Telegraph office	1 for every 100000 population

7. Police station	1 for every 50000 population
8. Library	1 for every 15000 population
9. Theater	1 for every 250000 population
10. Shops	1 sqm for every 4000 population
11. Fire station	1 for 5km radial distance

	Income Group	Dimension of Site	Area in m²
	LIG	Gm x 15m (30'x50')	135
		12mx15m (40'x50')	180
	MIG	12mx18m	216
		14mx21m	294
		15mx24m	360

	HIG	12mx18m	486
		14mx21m	720
		15mx24m	972
	Public housing /	90mx90m	8100

UNIT-IV
CONSTRUCTION TYPES AND COST EFFECTIVE MATERIALS

4.1 COST EFFECTIVE MATERIALS

State any two requirements of cost effective building materials. (Ma/June

2007, May/June 2006, Apr/May 2005)

The materials that are newly introduced are economical and have many advantages over other type of materials. These materials are called cost-effective modern construction materials. Every material has its own advantages and disadvantage. So the material with more advantages and less cost is called as a cost effective construction materials.

Man and his activities produce a lot of wastes at the same time man consumes many things. The building materials are the largest in terms of weight being above 5 tones per capita per year consumed by a man than other things. The above wastes are disposed at unwanted places, but these base materials become useful resources when they are positioned in wanted places. Today this is to be done in a technologically feasible (possible) economically viable and socially desirable manner. This becomes an existing and challenging field. Scientists, technologists, environmentalists, engineers and economists and others have to play an important role for effective waste management.

The most common chemical elements in the building materials are oxygen, silicon, calcium, iron, aluminum, carbon and hydrogen. Mostly these chemical elements are to be found in abundance in nature as well as most of the waste. To the usage of wastes by converting those into building materials become necessary today.

Utilisation

In India nearly 325 million tones of agricultural and over 250 million tones of industrial wastes are generated annually. Indian cement, building materials and construction industry utilize not more than 15 to 20% of it. In developed countries 40 to 45% is utilized.

The multiple use of utilizing industrial wastes is a important factor. This contains the recycling of acro industrial wastes for the manufacture of industrial waste and components. Value added products from phosphor gypsum, Fluoro gypsum, slag, carbonate and lime sludge, copper tailing, cement kiln dust, red mud, alpha naphtha, polymer composites, manufacture of boards from saw dust, jute sticks, and jute fiber boards, glass reinforced gypsum roads, fly ash polymer composite doors, shutters(or) panels, sisal fiber, cement corrugated roofing sheet etc.,

Objectives of Waste Utilisation

To create employment and income generating opportunities for the poor in rural areas.

To improve standards of living and working conditions.

Promoting the production and use of affordable building materials, and related infrastructural facilities based on wastes.

To reduce energy energy cost

To minimize environmental pollution by recycling the wastes.

To increase the efficiency of construction by making the supply of building materials at affordable (or) reasonable prices.

The waste materials like fly ash, red mud, phospo gypsum, rice husk are mainly used for the following reasons:-

Modernization of building material and construction industry

Human resource development in the building materials industry

Strengthening industrial and external services.

Well known agencies like American Concrete Institute, CIB, CANMET (Canada), and in India (DST), NTPC (National Thermal Power Corporation) and BIS (Bureau of Indian Standards) are carrying out the works and research on waste utilization.

4.2 CONSTRUCTION TECHNIQUES

Guniting

Grouting

Plastering

Floor Compactor

Bar bending

Cement

Recently different types of cements and grades of cements are being used based on the different situations. Earlier 33 grade of cement was used for flooring, concreting and plastering works. Now 43 grade of cement is mainly used for the above works. Higher grades like 53 grade is used for heavily loaded structures, bridge, dam and concrete with heavy traffic.

Repaid hardening cement, high alumina cement, low heat cement or oil cement,

Concrete

The recent construction techniques make use of a particular type of material which is more advantageous and construction equipments giving more accurate results and saving in time. In concrete the special concretes like fiber reinforced concrete, polymer concrete, light weight concrete, high density concrete, high volume fly ash concrete, high performance concrete are used to meet the special conditions and circumstances where ever required.

The fiber reinforced concrete is a concrete with addition of discontinuous, discrete and uniformly dispersed fibers to reinforce the concrete. The fibers normally used are steel, nylon, carbon, polypropylene, glass, coir, cellulose fibers etc.

Ferrocement is made by mixing cement mortar with wire mesh. This is used for water tanks and precast slabs etc.

Construction chemicals like accelerators, retarders, water proofing compound, water repellent are widely used in concrete to improve the specific quality of concrete.

Use of HPC

This is a concrete having high strength and durability. This concrete is made by adding mineral admixtures like fly ash, silica fume and chemical admixtures like super plasticizers with conventional ingredients of cement, sand, coarse aggregate and water. For heavily loaded structures HPC is used.

Grouting

Grouting involves injecting a grout material into generally isolated pore or void space of which neither the configuration or volume are known, and is often referred to simply as grouting.

The grout may be a cementitious, resinous, or solution chemical mixture. The greatest use of pressure grouting is to improve geomaterials (soil and rock). The purpose of grouting can be either to strengthen or reduce water flow through a formation. It is also used to correct faults in concrete and masonry structures.

4.3 CONSTRUCTION EQUIPMENT

1. Earth Moving Equipment

Dozer

Wheel Loader Hydraulic Excavator Vibratory Compactor

1. Road making Equipment

Roller

Road Paver

Asphalt Concrete Plant

2. Hauling Equipment

Tractors Trailors

Trucks

Tipper

3. Equipment's for piling/diaphragm walls, marine works

Piling Rigs

Rotary, Piling Rigs/Crane Mounted Rotary Piling Rigs

Piling Winch Pile Hammer Boring Tools

Diaphragm Wall Rigs

Vibratory Hammer

High Pressure Mud Pump

4. Floating Equipment's for Marine Works

Jack up Platform

Cutter Suction Dredger Grab Dredger Submersible Dock Barge Hydro clam Barge

Multipurpose Hopper Barge

5. Concreting Equipment

Batching Plants Mixers

Concrete Pumps

Transit Mixers Dumpers Concrete Placers

6. Slip Form Equipment

Slip form Jacks

Hydraulic Pump

Tapering Slip Form

7. Lifting and Handling Equipment

Cranes

Tower Cranes

Hoists/Winches

4.4 REHABILITATION TECHNIQUES

Guniting, grouting, sealant, crack filler, damp proof materials are used for the various repair and rehabilitation works in construction.

Shotcrete

Shotcrete (also known by the trade name Gunitite) uses compressed air to shoot concrete onto (or into) a frame or structure. The greatest advantage of the process is that shotcrete can be applied overhead or on vertical surfaces without forming. It is often used for concrete repairs or placement on bridges, dams, pools, and on other applications where forming is costly or material handling and installation is difficult. Shotcrete is frequently used against vertical soil or rock surfaces, as it eliminates the need for formwork. It is sometimes used for rock support, especially in tunneling. Shotcrete is also used for applications where seepage is an issue to limit the amount of water entering a construction site due to a high water table or other subterranean sources. This type of concrete is often

used as a quick fix for weathering for loose soil types in construction zones.

Limecrete

Limecrete or lime concrete is concrete where cement is replaced by lime. One successful formula was developed in the mid 1800s by Dr. John E.Park. We know that lime has been used since Roman Times either as mass foundation concretes or as lightweight concretes using a variety of aggregates combined with a wide range of pozzolans (fired materials) that help to achieve increased strength and speed of set.

Health Benefits

Lime plaster is hygroscopic (literally means ‘water seeking’) which draws the moisture from the internal to the external environment, this helps to regulate humidity creating a more comfortable living environment as well as helping to control condensation and mould growth which have been shown to have links to allergies and asthmas.

Lime plasters and limewash are non-toxic, therefore they do not contribute to indoor air pollution unlike some modern paints.

Sealant

Sealant may be viscous material that has little or no flow characteristics and stay where they are applied or thin and runny so as to allow it to penetrate the substrate by means of capillary reaction. Anaerobic acrylic sealants generally referred to as impregnants are the most desirable as they are required to cure in the absence of air, unlike surface sealants that require air as part of the cure mechanism that changes state to become solid, once applied, and is used to prevent the penetration of air, gas, noise, dust, fire, smoke or liquid from one location through a barrier into another. Typically, sealants are used to close small openings that are difficult to shut with other materials, such as concrete, drywall, etc. Desirable properties of sealants include insolubility, corrosion resistance, and adhesion. Uses of sealants vary widely and sealants are used in many industries, for example, construction, automotive and aerospace industries.

4.5 Cost Effective Technologies adopted by Building Centre

1) Rat Trap Bond

Rat trap bond is a technique by Lawrie Baker in which bricks are placed on edge leaving gaps within the wall. The strength of such a wall is the same as the traditional wall but the savings in quantity of bricks and cement mortar is upto 25% and for this bond no plastering is required.

A. Introduction To Rat Trap Bond Masonry (RTB)

A “Rat-Trap Bond” is a type of wall brick masonry bond in which bricks are laid on edge (i.e. the height of each course in case of a brick size 230x110x75 mm, will be 110 mm plus mortar thickness) such that the shiner and rowlock are visible on the face of masonry as shown below.

This gives the wall with an internal cavity bridged by the rowlock. This is the major reason where virgin materials like brick clay and cement can be considerably saved. This adds this technology to the list of Green building technologies and sustainability for an appropriate option as against conventional solid brick wall masonry.

This cavity adds an added advantage as it adds a Green building feature of help maintain improved thermal comfort and keep the interiors colder than outside and vice versa.

The Rat trap bond construction is a modular type of masonry construction. Due care must be taken while designing the wall lengths and heights for a structure. The openings and wall dimensions to be in multiples of the module. Also the course below sill and lintel to be a solid course by placing bricks on edge. The masonry on the sides of the openings also to be solid as will help in fixing of the opening frame.

2) Stabilised Mud Block Walling

Here instead of bricks, locally available mud is compressed into blocks by a hand operated machine along with 5% cement by volume for stabilization and cured with water for 7 days. These wall made up of such blocks required no plastering. The cost saving is more due to 95% mud mortar used for bonding with each other. Some of the multi storied buildings have been built using mud.

3) Stabilized Quarry Dust Solid / Hollow Block Walling

The quarry dust which is available from stone crushers can be used to make cement stabilized compressed block. The hollow block this gives lesser quantity of material for a given size without compromising on the strength. The cost of construction is very much reduced by this method than the cost of traditional cement and brick walls. The airspace in the hollow blocks keeps the building cool in summer and warm in winter. The rat trap bonded walls are called as thermal insulators. The other variance of stabilized blocks include rubble stones compressed together as solid blocks.

4) Filler-Slab Roofing

This concept can be employed in reinforced cement concrete (RCC) roofs of buildings. Here bottom half of the RCC roof slab can have filler material such as old clay (Mangalore) tiles, country bricks, water bottles or even coconut shells, instead of cement concrete. While laying the roof such filler material is placed between steel rods used for reinforcement and then concrete is spread over it. The strength of such a roof is no way affected by the presence of such filler material which is a cheaper substitute for costly cement. And there is no danger of the filler material falling on the head though it is always an option to plaster the roof from inside at additional direct solar radiation, due to the air trapped between the two tiles, so that such filler slab roof buildings are more comfortable to live in.

8) Prestressed Concrete

Prestressed concrete is a method for overcoming concrete's natural weakness in tension. It can be used to produce beams, floors, or bridges with a longer span than is practical with ordinary reinforced concrete. Prestressing tendons (generally of high tensile steel cable or rods) are used to provide a clamping load which produces a compressive stress that balances the tensile stress that the concrete compression member would otherwise experience due to a bending load. Traditional reinforced concrete is based on the use of steel reinforcement bars, rebars, inside poured concrete.

Prestressing can be accomplished in three ways: pre-tensioned concrete, and bonded or unbonded post-tensioned concrete.

Pre-tensioned concrete is cast around already tensioned tendons. This method produces a good bond between the tendon and concrete which both protects the tendon from corrosion and allows for direct transfer of tension. The cured concrete adheres and bonds to the bars and when the tension is released it is transferred to the concrete as compression by static friction. However, it requires stout anchoring points between which the tendon is to be stretched and the tendons are usually in a straight line. Thus, most pretensioned concrete elements are prefabricated in a factory and must be transported to the construction site, which limits their size. Pre-tensioned elements may be balcony elements, lintels, floor slabs, beams or foundation piles. An innovative bridge construction method using pre-stressing is the stressed ribbon bridge design.

The advantages of this system over unbonded post-tensioning are:

Large reduction in traditional reinforcement requirements as tendons cannot distress in accidents.

Tendons can be easily "woven" allowing a more efficient design approach.

Higher ultimate strength due to bond generated between the strand and concrete.

No long term issues with maintaining the integrity of the anchor/dead end.

9) Precast Concrete

Precast concrete is a construction product produced by casting concrete in a reusable mold or "form" which is then cured in a controlled environment, transported to the construction site and lifted into place. In contrast, standard concrete is poured into site-specific forms and cured on site. Precast stone is distinguished from precast concrete by using a fine aggregate in the mixture, so the final product approaches the appearance of naturally occurring rock or stone.

By producing precast concrete in a controlled environment (typically referred to as a

precast plant), the precast concrete is afforded the opportunity to properly cure and be closely monitored by plant employees. Utilizing a precast Concrete system offers many potential advantages over site casting of concrete. The production process for Precast Concrete is performed on ground level, which helps with safety throughout a project. There is greater control of the quality of materials and workmanship in a precast plant rather than on a construction site. Financially, the forms used in a precast plant may be reused hundreds to thousands of times before they have to be replaced, which allow cost of formwork per unit to be lower than for site-production.

Many states across the United States require a precast plant to be certified by the Architectural precast Association (APA), National Precast Concrete Association (NPCA) or Precast Prestressed Concrete Institute (PCI) for a precast producer to supply their product to a construction site sponsored by State and Federal DOTs.

There are many different types of precast concrete, forming systems for architectural applications, differing in size, function, and cost. Precast architectural panels are also used to clad all or part of a building façade free-standing walls used for landscaping, soundproofing, and security walls, and some can be Prestressed concrete structural elements. Storm water drainage, water and sewage pipes, and tunnels make use of precast concrete units.

4.6 BUILDING CENTRE

Define building centres. (Nov/Dec 2012)

State the concept of building centres. (Apr/May 2005)

Describe the concept and function of network of building centres in India. (May/Jun 2006) Evaluate different functions and performance of any one building centre in Tamil Nadu. (Apr/May 2005, May/June 2006)

A building centre is an organization to use cost effective materials and techniques in construction by taking into account strength, durability, comfort and elegance of any building. The building centre forms low cost technologies with very good quality in construction. This low cost technology reduces the cost of construction without affecting the quality.

Cost effective technology is a collection of methods or strategies that use innovative materials and techniques to construct building at a cost less than a cost of current methods of construction. The main aim of such technologies is to save the money and time without compromising on strength, durability, comfort and elegance of any building. So building centre is an organization to implement cost effective materials and techniques in construction by taking into account strength, durability, comfort and elegance of any building. This building centre form low cost technologies with very good quality in construction. Low cost technologies reduce the cost of construction without affecting the quality.

Objectives

The Setting up of Building Centres is an institutional development approach for the extension of improved low-cost building technologies through skill upgradation of local artisans and training of urban and rural youth, at State, district

and block levels. Low-cost building technologies to be propagated through these Building Centres will have to be carefully identified on the basis of local needs, resources and environment, The following will be the broad areas of action.

- (a) Upgradation of traditional technologies will be one of the major concerns of the Building Centres. Development and manufacture of established mud- blocks by using small quantity of lime and cement, making the traditional thatched roofs in the rural areas proof and fire resistant by adopting various methods and such other measures will be propagated by the Centres.
- (b) Development of skills for pre-fabricating low-cost building components with efficient utilization of steel and cement, like RCC sanitation rings and ferrocement water tanks, hollow blocks, stone blocks, channel roofing system, fibre concrete tiles etc. would be the major thrust area in these Centres.
- (c) Encouraging building components using wastes and recycled materials would be another major concern of these Centres.
- (d) Various manufactured low-cost building materials like asphaltic roofing sheet, Sulabh Sanitary wares, siporex components etc. can be stocked by the Building Centres and sold to home builders at reasonable prices.
- (e) The local artisans and unemployed youth will be trained in the use of low- cost building components and improved tools and equipments developed by building research institutions etc. so as to' upgrade their skills.
- (f) The Centres will also promote low-cost house designs which relate to the life style of the local people.

UNIT-V**HOUSING FINANCE AND PROJECT APPRAISAL****5.1 PROJECT APPRAISAL**

Once projects have been formulated, it is the job of the planner to appraise the project. That is, decide if the project should be:

Recommended for funding; or

That further work is required of a minor nature that can be completed quickly and then be considered for funding; or

That project requires further work and should be considered for funding in a future year; or,

Due to the complex nature of the project, feasibility needs to be undertake; or

That the project should be rejected.

Feasibility Studies

Most donor funded projects involve a feasibility study, usually undertaken by external technical assistance, to provide sufficient information to make a funding decision. Any Project that is appraised as needing a feasibility study should then be modified and included in the approved list of projects clearly tiled as a feasibility study.

5.2 APPRAISAL METHODOLOGY

Projects are appraised under 3 headings: Relevance, Feasibility and Sustainability. Using the information supplied in the project profile from, the Logical Framework Approach is used to assess the quality of the project proposal, assess the gaps in information supplied in the project profile, and decide which Appraisal Outcome should be assigned to the project, including if a feasibility study is needed. Ideally, issues of relevance, feasibility and sustainability were already addressed during project identification and formulation. However, many project proposals will not contain sufficient information.

Therefore, the appraisal involves:

Editing the proposal into a logframe format to assess the Relevance, Feasibility and Sustainability of the project, or

Checking the Relevance, Feasibility and Sustainability of a Log frame where one has already been prepared (for example, with a donor sponsored project).

The Logframe will assist to determine:

The adequacy of the target group description and problem analysis.

The relationship between stakeholders, identified problems, and the proposed project intervention.

The Completeness and coherence of project objectives, and the adequacy of assumptions.

The extent to which mechanisms to build sustainability have been incorporated into the project's design.

The adequacy of the proposed monitoring system.

The output of this analysis is a set of questions concerning the project's Relevance, Feasibility and Sustainability. If the project is large or complex and many questions remain, then these question could be incorporated into the Terms of Reference for a Feasibility Study.

Relevant:

Consistent with the policy and programming framework;

Within the institutional capacity of the project sponsor to implement

Addressing key problems of the sector or stakeholders, and takes account of key crosscutting issues such as gender and the environment);

Complements or is consistent with other ongoing and planned projects, programmes or recurrent activities

Feasible:

Strategy adopted by the project is realistic and within government policy (e.g. does not conflict with a private sector driven growth strategy)

The "hierarchy of objectives" make sense and are logical (Project Objective, purpose, results and activites);

Cost estimates are sound

Assumptions made by the project are justified (the planner may have to identify these underlying assumptions during appraisal)

The project implementing agency has the management, coordination and financing arrangements to implement the project (including availability of complementary recurrent funds if required);

Sustainable:

There is adequate ownership of the project by project beneficiaries

Policy will remain supportive after the project has ended.

Technology is appropriate

Environmental concerns have been addressed.

The implementing agency is able to provide follow-up once the project has ended.

That any financial or economic analysis is reliable (e.g. a cost benefit analysis)

Professional judgment must be applied in determining whether or not all appraisal criteria are relevant /applicable to the particular project or programme in question.

5.3 APPRAISAL OF HOUSING PROJECT

Explain the method of appraisal of housing projects. (Nov/Dec 2012)

It means the checking of the housing project with respect to the specification and quality of construction, materials, labour, time (project duration) as per the pre-plan schedule prepared already. The following important points are considered in housing projects.

The materials used in construction are to be checked for its quality by testing them in laboratories.

The different types of labour involved in construction like skilled, unskilled labor etc., are to be engaged in construction based on the specification, norms and standards as prescribed earlier.

The housing project is to be completed within the specified or stipulated time.

Unnecessary delay in supplying the materials, carrying out any labour work should be avoided.

Quality control is exercised by a technical team containing diploma engineer, graduate engineers, architects and specialized fields like structural engineers, environmental engineers, etc.,

The finance invested should be properly utilized for housing project.

This should be checked by an accounting department.

In general the success of any housing project is mainly with appraisal of the housing project.

After the housing project is sanctioned or approved, the loans are granted to execute the project the method of checking housing project as per the plan and specifications regarding the quality of materials, type of labour, completion of project in time is called appraisal of housing project.

In appraisal the following points are important.

1. Construction or building material

In the housing project any material life like brick, stone cement, sand, etc.,

20mm and 40mm; wood and steel etc are used for each work. The specifications are given these specification are be checked by the qualified personnel or engineers.

For example:

Brick means first class brick and its proper size and shape are to be followed as per the specification similarly for aggregates the grading or aggregates size and shape of aggregates are to followed as per specification.

2. Appraisal of labours.

For each and every stage of construction work, the suitable laborers are to be engaged in the work.

For example:

Stone masonry work

First class mason, second class mason, mazdor, I, mador II etc required are to be correctly identified and engaged in the work. Similarly the skilled labour for skilled works and unskilled labour for unskilled work are be correctly used in the work.

The work outturn or the labour work completed by a labour in a day or quantity of work is to be verify and whether the wages paid are connect according to the out turn or the work. For each type of work, the quality of work of labour is to be checked. This is called of labour in housing project.

Quality

The quality of the construction work is table checked at each and every stage for this the lab test are in situ test (test in site) may be carried all to ensure the quality. After construction also the quality should be ensured. For the amount is retained by the department or house owner. And there is no fault or damage in construction and the quality is correct and then after some time that retained money is given back to the constructor.

Fiance

The fund required to carryout the project at different stages of the work are to be accessed earlier then the money is spent as per the different types of works.

Time

The time taken to complete the project correctly maintained and followed. If the work delayed, the interest and penalty for the loan one paid unnecessary. For this the network diagrams, charts are prepared for any housing project and every activity of work is to be checked and compared with the bar chart for completing in time.

5.4 PROJECT FINANCING

This stage of the project cycle involves securing finance for the project, either through the Government budget, or through aid donor funds. Once new projects have been approved, discussions are held with donors to secure their commitments to funds the projects. At a later stage, projects that have not secured donor funds are forwarded for financing in the budget.

5.5 HOUSING FINANCE

Housing finance is done by state government departments like Tamilnadu Housing Board, Tamilnadu Slum Clearance Board, Tamilnadu Police Housing board (TNPBH), and development banks, provident fund loan (PF house loan), housing finance for group housing scheme for Aadhivaidar development, building centre at all district collector offices. Private organization, limited companies are also granting loans for housing but the interest rate for finance is higher than other central and state Govt.department.

Central Govt. departments like HUDCO, HDPC, LIC etc also grant loans for housing projects.

Banks

All nationalized and private banks also provide housing finance facilities. All the State Govt., Central Govt., private, departments and bank provide housing finance it purchasing land

To construct new houses

To purchase a flat in an apartment

To purchase an individual houses

To extent or additional construction

To repair or maintain the houses

For land development by layout formation

It also provide housing finance for facilities like water supply, power supply, arrange

road facility, communication and common facilities line park, playground, indar stadium, recreational club etc

The housing finance is investing the money carrying out any housing project. Various methods are:

1) Rent supplement.

- 2) Long term low interest loans
- 3) Public subsidized housing
- 4) Tax reliefs
- 5) State insurance for home mortgages
- 6) Mortgages – pledging of land or any property to the bank for getting loan.

HUDCO, HDFC, LIC, GIC (General insurance corporation housing societies, Bank,

Private loan facilities for the people intending to construct their houses in a housing project.)

5.6 HOME LOAN

Home is an integral part of an individual, who since his / her birth and childhood, dreams to have living space of his / her own. Once in a lifetime investment requires loan to accomplish it and that is how the home loan comes into scheme of things. Buying a home is dream for everyone. Owing to the rising price of properties, it has almost become impossible for an average earning person to buy a home on a lump sum payment. Therefore, the concept of home loan has come in existence. There are plethora of housing finance companies and equal number of banks that offer home loans. The task of selecting one company and one offer for home loan amidst the thousands available options have become a very complex task owing to the burgeoning housing finance market in the country. Apart from this, there are intricate business jargons and technicalities that make this task more difficult. In this study, so that when a person applies for the home loan, he / she can understand the basics and help themselves remain away from the duping elements in the market.

Importance of Home Loan

The need for home loans arises not because property prices are heading upwards all the time but because home loans make great sense from a long-term savings perspective. Not only are home loans a handy tool for the common man to own a roof over his head but they also help save money in the long run.

With skyrocketing real estate prices, people are increasingly opting for housing loans to acquire their dream home. Interest rates are coming down all the time and the banks and the housing finance companies are literally falling over each other to lure the prospective home-seekers.

Notwithstanding the tax breaks and generous lending rates, a lot of people still cannot arrange resources for the down-payment, which

comes out to be at least 15 per cent of the property value. Taking cognizance of the situation, Banks are 100 per cent funding is provided for select properties. These lucrative offers are other major reasons for why people are opting for loans.

Even if one can afford to buy a home with one's own money, loans should be availed because they act as good saving instrument. According to industry estimates, the long term average return in investing in a home is about 20% p.a. while the average cost of borrowing funds in the market today is about 7% p.a. (considering all tax breaks.)

For salaried employees, housing loans are the best way to avail of tax benefits. Many people simply go for the home loans in order to avail these benefits. Interest payments up to 1.5 lakh on housing loans are deductible from the taxable income and there is a further deduction of taxable income maximum up to 1 lakh against repayment of principal portion per annum. In case a person stays in a rented house, the cost of the loan will be nearly zero per cent since he will be saving a decent amount on rent.

All the banks offer many types of loan and advances to the customers like retail

loan, term loan, working capital finance, overdraft, export import finance and project finance. Since this study is based on home loan and home loan is part of retail loan various types of retail of retail loan are explained in 5.1.6.

5.7 ELEMENTS TO DETERMINE COST OF THE HOUSE

a. Readymade Properties

Agreement value for buying the property.

Value of amenities provided along with the flat and payment made separately under an amenities agreement. In most cases, the amenities agreement is an attempt to segregate the cost of the amenities to avoid paying the high stamp duty on real estate in India. Most banks restrict the value of the amenities to around 20 per cent of the total agreement value of the flat. However, if the amenities agreement is also stamped and registered most banks will consider 100 per cent of such costs.

Stamp duty and registration charges to be paid on the agreement.

Initial capital expenses, such as civil work, are to be met with.

Some banks will also include transfer charges payable to a cooperative society, deposits required by electricity companies, and separate payments for club houses.

Banks would also consider any cost incurred towards purchase of a parking space.

Cost of furnishing: In case of specific tie – up with a builder, a bank may include the cost of ready furnishings provided along with the flat. Typically bank will not provide loan for some of the elements of cost such as stamp duty or registration cost. But some banks consider cost such as stamp duty or registration cost include in cost of property.

b. Self – Constructed Properties

Cost of the land, taken as the cost to customer or current market value, whichever is lower. Some bank will not take the cost of the land into account if customers have brought it more than a year ago. Cost of construction as estimated by customer's architect and vetted by the bank, fees paid for obtaining legal and statutory approvals, stamp duty and registration charges payable on agreement.

5.8 COST RECOVERY

Define cost recover. (Nov/Dec 2012)

Evolve a conceptual methodology for the recovery pattern of a housing project. (May/June 2007)

If the quality of material, quality of construct project duration are not maintained or followed as per plan then the cost recovery will be made.

Cost recovery means asking for payment of money for the delaying work, improper quality of construct using materials and labour.

If the repayments are not properly made for the loan and if any delay is caused continuously the cost recovery will be made from the owner the house by the authority issuing the loan.

The loaning authority (loan issuing authority like bank, LIC, or any state govt, or private department grant the loans for housing after obtaining the following documents from the land owner.

The amount of loan sanctioned is then income to them. The loans is divided into three or four installments, after a particular portion of work is completed they release the first installment for this the approved engineer has to give the work completion certificate. Based on the completion certificate, second, third and final installments are released.

The cost recovery starts immediately a first installment is released the recovery in the principal amount of loan and interest for 10 to 15 years based on the repayment capacity of the house owner.

Normally, the nominees are appointed by the house owner. If anything happens to the house owner the nominee is responsible for repayment of loan.

In addition to the income certificate the money savings, fixed deposited insurance policy or any other property or jewels and valuables etc of the nominee of the house owner are also collected by the loan issuing authorizes like banks etc.

If repayment is made not correctly, the nominee is questioned and the notice be send to both or them. Sometimes the nominee or guarantor has to repay the loan from his savings or income or any deposits or policies or nay property that he has in LIC loan.

If the repayment is completely stopped in that case the property will be sold by the department by publications.

EMI means Equated Monthly Installment

EMI – Loan principal amount + interest in equally paid installment for all months.

LIC – Loan Principal amount + interest + insurance policy amount

The cost recovery includes the principal loan amount, interest, penalty or fine and the court expenses etc.

5.9 CASH FLOW ANALYSIS

What is Cash flow analysis ? (Nov / Dec 2012) Cash Flow

Cash flow is the movement of money into or out of a business, project, or financial product. It is usually measured during a specified, limited period of time. Measured of cash flow can be used for calculating other parameters that give information on a company's value and situation. Cash flow can be sued, for example, for calculating parameters; it discloses cash movements over the period.

To determine a project's rate of return or value. The time of cash flows into and out of projects are used as inputs in financial models such as internal rate of return and net present value.

To determine problems with a business's liquidity. Being profitable does not necessary mean being liquid. A company can fail because of a shortage of cash even while profitable.

As an alternative measure of a business's profits when it is believed that accrual accounting concepts do not represent economic realities. For instance, a company may be notionally profitable but generating little operational cash (as may be the case for a company that barters its products rather than selling for cash). In such a case, the company may be deriving additional operating cash by issuing shares or raising additional debt finance.

Cash flow can be to evaluate the 'quality of income generated by accrual accounting. When net income is composed of large non – cash items it is considered low quality.

To evaluate the risks within a financial product, e.g., matching cash requirements, evaluating default risk, re – investment requirements, etc.

Cash flow notion is based loosely on cash flow statement accounting standards. It's flexible as it can refer to time intervals spanning over past – future. It can refer to the total of all flows involved or a subset of those flows. Subset terms include net cash flow, operating cash flow and free cash flow.

Sources of cash

1. Internal Sources
2. External Sources

Internal Sources are development by the money rotation in nay business. External Sources are finance development due to shares and loans.

Sources of cash

1. Share documents
2. Bank loan
3. Selling of a property
4. Any business

Cash In Flow

These contain the following

1. Collecting share document from public
2. By loan documents
3. Bank loan or industrial loan or business loan
4. By sales
5. Profit from external investment
6. By sales of property

Cash out flow

1. Purchase of property
2. Purchase of raw material
3. Issues of loans
4. Current expenses like salary, maintenance etc.

The above cash inflow and outflow are analyze in cash flow analysis.

5.10 SUBSIDY

**Compare the two concepts of subsidy and cross subsidy in housing finance.
(May / June 2007)**

Differentiate between Subsidy and Cross subsidy in housing finance (Apr/ May 2005, May / June 2006)

Normally housing project adapted by central govt., housing agencies like HUDCO grant concession in the loan issued for the housing project. The concession or any benefit given to the public in construction of a house is called subsidy.

For example :

Low cost projects and rural housing projects 10 to 20% is given as subsidy to the people. They need not pay these subsidy amounts to the government, balance amount only is to be repaid in the long term with low interest.

The backward taluks and panchayats, the govt, provides many housing schemes with subsidy. Similarly, poor peoples, weavers, rural, peoples are benefited by the subsidy scheme.

(or)

Normally for housing projects a benefit or concession is given to the people by the Govt, for the construction of a house is called as a subsidy. A part amount of loan is borne by the Govt. department which is known as subsidy. The remaining part of the loan is around repaid by the house owner.

The central Govt. department like HUDCO, grant's 10 to 20% subsidy for the house loan.

For Example:

The house by the housing board. Like housing board, co-operative housing societies and other agencies are also constructing houses and fix the price of houses in the above method.

5.11 CROSS SUBSIDY

Cross subsidy is concession given to the public at any intermediate stage of construction or at the final stage of the construction.

For example

If the poor people are not able to meet the expenses of construction due to poverty, the Govt. after understanding their position announces some benefits or concession at the intermediate stages, which is called as cross subsidy.

The people constructing their houses in a backward area or slum area or providing a gross subsidy either in the form of free power supply water supply. etc.

If any disaster like flood, earthquake, landslides, Tsunami, cyclone etc. the cross subsidy is in the form of no repayment of the further installments or the total loan.

If any rural industry or backward are to encourage the rural development or entrepreneur or a small scale industry in a rural location, 15% subsidy is granted by for rural industries, free electricity or reduces of electric charges are granted which are cross subsidy of the government.

The cross subsidy is given to encourage the people who are promptly repaying the loan interest and affected by povety.

5.12 PRICING OF HOUSING UNITS

Briefly describe the methodology for pricing of housing unit (May / June

2006, Nov / Dec 2012)

Normally a price of houses of housing are fixed by the government of housing board on prevailing or present guideline value or more value of load and the actual cost of construction. Based on the various income levels income groups the repayment amount and the price of houses are fixed by the housing board EWS, LIGH, MIG and HIG houses.

The price of the house is also fixed base facilities provided or amenities created in the building. The facilities include the number of bed rooms the size of rooms, attached bath or toilet, water supply arragnments etc.

Actual guide line value – Fixed by registrar office. Market value – Selling Price

The total cost of the house includes the cost construction of house and the cost of the land. The common facilities like park , playground, community hall, recreational hall, lift provision, security char fencing or compound, temple etc are provided for which the some amount is collected.

5.13 RENTS

Rent is the money collected every month from the tenant people who live by paying rent for houses to the house owner for the various facilities¹ provided in the house the rent is paid every month and initially a deposit is collected from tenant. Normally 3 months' rent is collected as advance. If any damage is created in the building by the tenant while vacating the house suddenly without any prior notice or intimation to the house owner then monthly rent will be adjusted from the advance amount or any repair work, the advance amount will be utilised.

For Govt. buildings or officers like PWD housing board, co-operative banks, nationalized bank co – operative store, medical shops, warehouses etc, if any building is taken for rent by a govt. the following procedure is adopted.

Calculate the cost of construction

1. Year of construction
2. Cost of land
3. Guideline value or land
4. Market value of land
5. Locality of building such as panchyat village or town, municipality, corporation etc.

By considering the above factor the Govt. department calculates and fix the rent for buildings for a partition 100 period say 3 years.

The Govt. department will fix the rent and an agreement is signed by the Govt. department and the building one in which the rent per month, advance amount to be paid any inner furnishing arrangements self's partitions or modification, yearly % addition of rent, the method of payment or clearly return in the agreement. When the agreement period is ended, it will be renewed or cancelled based on the requirement. During renewal, the rent will be revised.

For bank officers govt servants, house rent allowances(HRA) is paid every money based on the location or the place in which they work, For cities, HRA will be more than other areas since the amount of living is more. Normally all the above details of particular building to be taken for rent of submitted to the higher authority. After getting the approval or permission from the concerned authority, the building will be occupied. If any maintenance work is to be required it has to be carries out by the house owner and if any fault in the tenant side, the charges will become by the tenants.

For example:

If any electrical appliances like lights switches, fans etc are damaged, it has to be rectified and replaced by the new one by the tenant. The tenant has to hand over the building to the building owner ID the same manner as when he occupies the building for rent housing is Rs.1 lakh 20% subsidy means Rs.20,999 deducted from the loan, only the balance amount Rs.80,000 is to be repaid by the house owner

For group housing for poor people or EWS economically weaker section, weaker, slum people etc., the subsidy is always given by the department. The subsidy is always given for cost effective construction technologies.

5.14 RECOVERY PATTERN

When the loan or housing finance is arranged for any housing programme, the repayment of loan along with interest starts immediately after the first installment of loan is released. The way in which the loan is repaid within the rest to the department is called recovery pattern.

Recovery pattern is defined as the method of repayment of loan with interest by some clear cut instructions. Similarly when a building is taken for rental purposes the

rent has to be paid correctly without any deviation in the agreement. If there is not paid correctly, the deposit amount paid by the tenant will be adjusted for rent.

If the tenant lives without paying the rent or refuses to pay the rent or refuses to vacate the building without paying the rent, the legal action are taken by building owner by filling a case against the tenant.

Sometimes instead of rent to be paid every month, an amount is deposited to the house owner and one can live for a period of 2 of 3 years. After this period, he can pay some more advance or pay the rent. All such things are properly recorded in the agreement.

If the loan amount is not repaid correctly, the department or bank or any corporative housing society will send a notice to the house owner and case is filed against them. The person who is the nominee to the who gives security to the loan will also be questioned and instructed to repay the loan. When, the loan is not repaid for a long period, then the court will ask the department to sell building in public auctions.

In public auction, the people will quote the rates and finally the person who quotes the highest rate which is equivalent or more to the loan amount along with interest and penalty and court charges.

5.15 DOCUMENTS FOR HOUSING LOAN

1. Building plan approved by component authority village.

Condition Monitoring and Operation Assessment (CMOA) – Planning Engineer

Local Planning Authority (LPA) Panchayat – President

Town Panchayat – Executive Authority Municipality – Commissioner Corporation – Mayer

2. Cost Estimation Local Authority House Loan
3. Encumbrance Certificate (From Sub register office)
4. Patta or Chitta (Ownership of land, from taluk office)
5. Registry Summary Report (RSR) – Total history of land
6. Legal Opinion (From Advocate)
7. Income Certificate
8. Private Business (Clearance Certificate from Chartered Accountant for last 3 Years)

UNIT-I**INTRODUCTION TO HOUSING****TWO MARKS QUESTION AND ANSWERS****1. Define Housing**

Housing generally refers to houses, social or public houses, enclosure (electrical), i.e. contain some equipments or mechanism.

Housing is a particular area where all the facilities are provided. It may be

1. Social
2. Physical
3. Environmental amenities etc.

2. Define Home?

Home is a residents or refuge and comfort. It is usually place in which on individual or a family can resist and able to store personal properties.

Home contains sanitary facilities and means of preparation of food, Animals have their own house assign well, either living in wild or in domestic environment.

3. Different Terminologies in Home?

House are residential dwelling is often referred to as a home. The concept of home expressed itself upon a much broader denotation of physical dwelling. Many people think that home in terms of where they grew up or lived, a place that brings back old memories of feelings and home can even be a time rather than an actual place.

A work home can be used for various types of residential institution in which people can live such as nursing home, group home i.e. orphanages for children, retirement home for seniors, persons for criminal, treatment facilities, etc and foster homes.

4. Define physiological Impact on Home?

It can be said that humans are generally creative of habit; state of persons

Home has been known to physiologically influence their behaviors, emotions and overall mental health. Some may become home sick when leave their home over an extended period of time.

5. Define House Hold?

House hold is a basic residential unit in which economical production consumption, inheritance, child rearing and shelter are organized and carried out. It may or may not be synonymous with family.

House hold is a basic unit of analysis in many social and micro economic and government models. The term refers to all individual who live in the same dwelling.

In economic, house hold is a person or group of people living in same residence. In reality, there is not always a one to one relation between the house hold and the families.

House hold includes all persons who occupy housing on it. It is a house, an apartment mobile home, a group of room or a single that occupation as a separate living quarters. Separate living quarters are those in which occupants live and eat separately from any other persons in building and which can direct access from outside of the building or through common hall.

Occupants may be a single family, one person living alone, two or more families living together or any other group or related or unrelated persons whose share the living arrangement.

6. Define apartment?

Apartment is a self contained housing unit that occupies only a part of building may be owned or rented. A common alternative term for an apartment is flat. The term apartment is used in North America, where as flat is commonly used.

Flat often denotes a housing block of lesser quality meant for lower income group where as apartment is more generic and may also include luxury condominiums. The word apartment denotes residential unit or selection in a building or a rental unit owned by the building owner.

7. What are the classifications of apartments?

Classification based on rooms

- ✓ Single bed room
- ✓ Two bed room
- ✓ Three bed room

Classification based on location

- ✓ Rent furnished with furniture
- ✓ Unfurnished

8. What is a multistoried building?

It is a building that has multiple floors above the ground in building. Multistoried building aims to increase the area of building without increasing the area of land of the building. Hence saving in land and in most cases i.e. money (depending on material used and land prices in the area).

9. What are the different types of special buildings?

- ✓ Agricultural building
- ✓ Commercial building
- ✓ Residential building
- ✓ Educational building
- ✓ Government building
- ✓ Industrial building
- ✓ Military building
- ✓ Religions building
- ✓ Parking building and storage building
- ✓ Other building

10. What are the objectives of housing policies?

National housing policy - 1994

The main objective of this policy is to production of economical points view of increased supply of service to provide a healthy environment.

National housing policy – 2001

To provide housing in both quality and const effectiveness.

National housing policy – 2001

To objective focus of this policy is the provision of “affordable housing for all”

National housing policy – 2007

11. What are the objectives of NHP?

- ✓ Need urbanization and development
- ✓ Rural to urban shifting of labor.
- ✓ Balanced regional development.
- ✓ Magnitude of poverty
- ✓ New policies and programmers.
- ✓ Role of housing and housing needs.

12. What are the bye laws in urban and rural areas?

Flat area (or) Carpet area:

The area covered in a building at any floor level. Area is the length X width between the walls.

Shops – godown ware houses, doorway opening in the street, shall be 1rn from the edge of the street.

13. What are the dimension of room?

Every room (other than kitchen, bathroom, store room) to be used for the purpose of human habitation, (human living purpose) shall have,

- (i) Height of building and 2.75 m and 2.1m at any point measured from top surface of the floor.
- (ii) A clear superficial area of 7.5m² = 7.5 X 10.75 esq.

- (iii) A width 42.5 m.
- (iv) Water closet - 1 esq. (3' X 4')
- (v) Bath cum (Toilet) - 2.7 m² (6' X 5')

14. What are the national level organizations?

- ✓ HUDCO - Housing Urban Development Corporation
- ✓ HDFC - Housing Development Financial Corporation
- ✓ LIC - Life Insurance Corporation
- ✓ National Banks

15. What are the state level organizations?

- ✓ Housing board (TN housing board)
- ✓ Slum clearance board (TNSCB)
- ✓ Police housing corporation (TNPHC)
- ✓ Co-operative housing society
- ✓ Land development bank
- ✓ Private housing finance
- ✓ Rural to urban shifting of labor
- ✓ Balanced regional development,
- ✓ Magnitude of poverty
- ✓ New policies and programmers.
- ✓ Role of housing and housing needs

16 MARK QUESTIONS WITH ANSWER

1. Explain briefly about types of structural buildings.

Agricultural buildings

❖ Barn

A barn is an agricultural building primarily located on farms and used for many purposes, notably for the housing of livestock and storage of crops.

❖ Farmhouse

Farmhouse is a general term for the main house of a farm. It is a type of building or house which serves a residential purpose in a rural or agricultural setting. Historically common were farmhouses which were combined with space for animals called a house barn. Other farm houses may be connected to one or more barns, built to form a courtyard, or each farm building was built separately.

❖ Storm cellar

A storm shelter or storm cellar is a type of underground bunker designed to protect the occupants from violent severe weather, particularly tornadoes.

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A shed is typically a simple, single-storey structure in a back garden or on an allotment that is used for storage, hobbies, or as a workshop.

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A silo is a structure for storing bulk materials. Silos are used in agriculture to store grain (see grain elevators) or fermented feed known as silage. Silos are more commonly used for bulk storage of grain, coal, cement, carbon black, woodchips, food products and sawdust. Three types of silos are in widespread use today; tower silos, bunker silos, and bag silos.

Silo types

- ❖ Cement storage silos
- ❖ Tower silo
- ❖ Bunker silos
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2. Explain briefly about residential buildings.

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It is defined a high-rise as “A multi-story structure between 35-100 meters tall, or a building of unknown height from 12-39 floors.

According to the building code of Hyderabad, India, a high-rise building is one with four floors or more in height.

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A dormitory in the United States is a residence hall consisting of sleeping quarters or entire buildings primarily providing sleeping and residential quarters for large numbers of people.

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A duplex house is a dwelling having apartments with separate entrances for two households. This includes two-story houses having a complete apartment on each floor and also side-by-side apartments on a single lot that

share a common wall. By contrast, a building comprising two attached units on two distinct properties is typically considered semi-detached or twin homes but may also be referred to as a duplex.

Educational buildings

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- ❖ School
- ❖ Library
- ❖ Museum
- ❖ Boarding school

4. Government buildings

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- ❖ City hall
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Parking and storage

- ❖ Boathouse
- ❖ Garage
- ❖ Hanger, of aircraft or spacecraft
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3. Explain about national housing policy.**NATIONAL HOUSING POLICY (NHP)**

India has an area of 328.73 million hectares; the population of India exceeds 100 crores.

In this, 75% of the people still living in villages. According to the statics 4 lakh, 87,170 villages are present.

Keeping in view of the above points the government provides 5 year plan. 8th five year plan are formed based on the basic criteria of improvement of villages.

The 8th five year plan combines any local agencies to achieve the objectives in this plan.

In this, NHP is proposed.

In this policy the planning commission was formed to know the requirement of house , types of people, no of village house required and no of houses in urban area are collected and decisions are made.

This commission forms 5 sub commissions among them.

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The planning commission gives the following statics, showing the urban and rural requirements of housing.

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- i) Encouraging State Governments, Urban Local Bodies, Development Authorities to periodically update their Master Plans and Zoning Plans which should, interlaid adequately provide for housing and basic services for the urban poor.
- ii) Promoting balanced urban-rural planning by following the Regional Planning Approach, take the whole State/UT as a region, under the Town & Country Planning Acts in the States.
- iii) Planning of Mass Rapid Transit Systems (MRTS) at the city Metropolitan Planning Area and Sub-region levels.

Affordable Housing

- iv) Accelerating the pace of development of housing and related infrastructure.

v) Creating adequate housing stock both on rental and ownership basis with special emphasis on improving the affordability of the vulnerable and economically weaker sections of society through appropriate capital or interest subsidies.

Increase flow of Funds

vii) Promoting larger flow of funds from governmental and private sources for fulfilling housing and infrastructure needs by designing innovative financial instruments.

viii) Designing suitable fiscal concessions in congruence with the Housing and Habitat Policy with appropriate monitoring mechanism to ensure that the concessions are correctly targeted and utilized.

ix) Removing legal, financial and administrative barriers for facilitating access to tenure, land, finance and technology.

x) Shifting to a demand driven approach and from subsidy based housing schemes to cost recovery-cum-subsidy schemes for housing through a proactive financial policy including micro-finance and related self-help group programmes.

Salient features of NHP

- ❖ The housing development should be based on the exact requirement and the environment.
- ❖ The housing design should be based on these important points.
- ❖ NHP gives the technical things and advises towards construction materials.
- ❖ For the individual investors various financial relaxations are given for the construction of their homes.
- ❖ The tax benefits or expectations or freedom are given for the people constructing of their homes.

- ❖ More house loans are released and people are encouraged to construct the houses.
- ❖ NHP implemented various schemes for helping the people to fulfill the housing requirements.
- ❖ NHP formed a National Housing bank for making various housing schemes.
- ❖ This helps to get financial support. The housing schemes are constructed and developed based on the building bye-laws.
- ❖ The NHP motivates the government to provide the water facility and drainage facility for various schemes.

4. Explain about sustainable house.

SUSTAINABLE HOUSE

“A sustainable house is one that uses energy and material more effectively both in production and operation while polluting and damaging natural systems as little as possible.”

Sustainable building refers to a structure and using process that is environmentally responsible and resource-efficient throughout a building's life-cycle: from siting to design, construction, operation, maintenance, renovation, and demolition. This requires close cooperation of the team, the architects, the engineers, and the client at all project stages. The Green Building practice expands and complements the classical building design concerns of economy, utility, durability, and comfort.

The common objective is that green buildings are designed to reduce the overall impact of the built environment on human health and the natural environment by:

- ✓ Efficiently using energy, water, and other resources
- ✓ Protecting occupant health and improving employee productivity

- ✓ Reducing waste, pollution and environmental degradation

Principles of sustainable Housing

State any two principles of sustainable housing. (Apr./May 2005, May/June 2006)

Sustainable housing is defined as the meeting of the needs of the person without compromising the ability of future generation to meet their own needs.

The important features or principles of sustainable housing is as follows.

- ✓ The needs of the housing are to be satisfied or fulfilled for the present requirement without affecting the environment.
- ✓ Sustainable development should ensure the environmental protection while taking the housing programs.
- ✓ The sustainable development should ensure the maximum rate of resource consumption.
- ✓ The waste materials should not be harmful to the society.
- ✓ The sustainable development should minimize the reverse impacts on resources and the environment for future generation.
- ✓ The should ensure the stopping of over exploitation of resources, reduce waste discharge and emissions and maintain ecological balance.
- ✓ The sustainable development will support economical growth of poor countries and help to narrow/minimize the wealth gap between the nations and within the nations.
- ✓ The sustainable development should follow an appropriate technology which should be adaptable, eco - friendly, resource efficient and culturally suitable. It involves mostly local resources and local labors.
- ✓ The 3R approach should be followed. i.e., Reduce, Reuse, Recycle. This means reduce the usage of resources, using them again and again and

redo the process to utilize again the resources to the maximum extent possible. This 3R approach reduces the waste generation and pollution.

- ✓ Environmental education and awareness should be created. This is possible by teaching the environmental subject from the school stage itself.

5. Explain about state level organization for housing.

The following are the organizations acting at state level for housing program

1. Tamilnadu Housing Board [TNHB]
2. Tamilnadu Slum Clearance Board [TNSCB]
3. Tamilnadu Police Housing Corporation [TNPHC]
4. Co-operative housing societies
5. Land development bank
6. Adiravidar housing development scheme [TAHDCO]
7. Building Centre [Located at collectorate of each district]
8. Private housing finance

1. Tamilnadu Housing Board [TNHB]

TNHB was formed in 1961 to cope up with the increasing demand in housing sector all over the state of Tamilnadu due to urban growth leading to migration to urban areas in search of employment opportunities. It is also the principal town planning and city and Suburb development arm of the Tamilnadu Government. It is under the Department of Housing and Urban Development (Tamilnadu)

Objectives

1. To clear all the slums in Chennai and to provide self contained hygienic tenements.

2. To prevent the growth of slums and encroachments
3. To prevent the eviction of slum dwellers by private owners and to provide the slum families with security of tenure.

To provide basic amenities like water supply, street lights, storm water drains, sewer line, etc to the slum areas.

Policies / Strategy

The Three pronged strategy for developing / clearing slums followed by tamil nadu Slum Clearance Board are:

i) In - Situ plotted development and infrastructure improvement

Whereever In-situ plotted development is feasible, such slums are identified and taken up for in-situ improvement for provision of basic facilities to make the areas habitable and for provision of tenurial rights to the occupiers after getting the land transferred to the tamilnadu slum clearance Board.

ii) In-situ tenemental schemes

The slums located in unobjectionable poramboke areas, wherein equitable distribution of space to all is not feasible, are cleared and tenemental (public housing) schemes put up.

iii) Rehabilitation and Resettlement scheme

Wherever neither tenemental nor insitu development is feasible, (as in the case of objectionable porambokes like water ways etc.) Rehabilitation and Resettlement in tenements in nearby locations with necessary infrastructure is taken up. The cleared site is then restored to its original use.

Other Programmes

- i) Tamil Nadu Slum Clearance Board has provided support to individual housing schemes under different programmes like VAMBAY, Rajiv Gandhi Rehabilitation Package etc.,

ii) To ensure holistic development and economic upliftment of the poor, the Board has spear-headed community development activities in the slums, under which it imparts vocational training and livelihood support, specially for the youth and women.

3. Tamil Nadu Police Housing Corporation (TNPHC)

Government of Tamilnadu with a view to raising the level of satisfaction in housing for police personal decided to construct houses for the Policemen and Police Officers. Accordingly this Company was registered under the Companies Act 1956, as a wholly owned Company of Tamil Nadu Government and came into being with effect from 13.4.1981. While the Company was gradually increasing its construction activities each year, the then Government based on the recommendations of Ramanathan Committee constituted to study the viability and usefulness of Public Sector Enterprises and other autonomous bodies. The activities of this Corporation were then transferred to the Tamil Nadu Housing Board.

4. Tamil Nadu Cooperative Housing Federation (TNCHF)

Introduction

Cooperative Housing Department has at its command a vast network Housing Cooperatives both in Rural and Urban centres for providing housing finance for improving housing sock in Tamil Nadu. As many as 196 Taluk Cooperative Housing Societies are catering to the demands of rural people, while a network of 574 Urban Cooperative Housing Societies are meeting the housing needs in urban areas, with all such societies affiliated to the Tamil Nadu Cooperative Housing Federation Limited.

5. Tamil Nadu Adidravidar Housing and Development Corporation Limited (TAHDCO)

Tamil Nadu Adi Dravidar Housing and Development Corporation Limited (TAHDCO) were incorporated in 1974 under the Companies Act, 1956 with a objective to improve socio economic status in Tamilnadu.

TAHDCO has facilitated Self Help Groups through financial assistance for employment ventures and to empower themselves by taking up a wide variety of economic activities such as.

National Schemes

TAHDCO acts as a State Channelising Agency in implementing the National Schemes of the Ministry of Social Justice and Empowerment, Govt. of India

The Schemes are:

- ✓ National Scheduled Caste Finance and Development Corporation Scheme
- ✓ National Scheduled Tribes Finance and Development Corporation Scheme
- ✓ National Safai Karamacharis Finance and Development Corporation Scheme
- ✓ National Scheme for Liberation and rehabilitation of Scavengers and Dependents

National Scheduled Caste Finance and Development Corporation (NSFDC)

- ❖ Project assistance up to Rs.5 Lacs per beneficiary is given.
- ❖ 30% of the Project cost subject to a maximum of Rs.25,000/- is given as subsidy.
- ❖ Balance up to 90% is given as term loan from NSFDC.
- ❖ Assistance is given for any viable income generating activity to scheduled Caste and beneficiaries.

- ❖ Margin Money assistance - 20% of the Project Cost (or) Max. Rs.1.25 Lacs

National Scheduled Tribes Finance and Development Corporation (NSTFDC)

National Scheduled Tribes Finance and Development Corporation provide financial assistance for schemes/projects for the economic development of scheduled Tribes.

- ✓ Project assistance up to Rs.5 Lacs per beneficiary is given.
- ✓ 30% of the Project cost subject to a maximum of Rs.25,000/- is given as subsidy.
- ✓ Balance is given as term loan from NSTFDC.
- ✓ Assistance is given for any viable income generating activity to Scheduled Tribe beneficiary.

National Safai Karamcharis Finance and Development Corporation (NSKFDC)

- ❖ Project assistance up to Rs.5.00 Lacs per beneficiary is given.
- ❖ 30% of the project cost subject to a maximum of Rs.25,000/- is given as subsidy.
- ❖ Balance is given as term loan from NSKFDC/Banks.
- ❖ Assistance is given for any viable income generating activity to sanitary workers and their dependents.

National Scheme for Liberation and Rehabilitation of Scavengers (NSLRS)

- ❖ Project assistance up to Rs.50,000/- per beneficiary is provided.
- ❖ 30% of the project cost subject to a maximum of Rs.10,000/- is given as subsidy.
- ❖ Balance amount is arranged as loan from NSKFDC/Banks.

- ❖ Assistance is given to scavengers and their dependents for any viable incoming generating activity as alternate source of livelihood.

6. Land Development Banks (LDB)

The special banks providing Long Term Loans are called Land Development Banks (LDB). The history of LDB's is quite old. The first LDB was started at Jhang in Punjab in 1920. But the real impetus to these banks was received after passing the Land Mortgage Banks Act in 1930's (LDB's were originally called Land Mortgage Banks). After passing this Act LDB's were started in different states of India.

Objective

The main objective of the land development bank is to promote the development of agriculture and increase the agricultural production. The CLDBs provide long-term finance to PLDBs affiliated to them or finance directly through their branches.

Structure

These Banks have two-tier structure

1. Primary Land Development Bank at district level with branches at taluka level.
2. State Land Development Bank. All primary Land Development Banks are federated into Central Land Development Bank at the State Level. In some States, there is "Unitary Structure" wherein, there is only one State Land Development Bank at the state level operating through its branches and sub-branches at district and below levels.

Primary Land Development Banks (PLDB)

These banks were originally organized to cover one or a few taluks in the district. At present they are eligible to cover one development block. All land owners are eligible to become members and borrow funds by

mortgaging their land. The principal borrower is enrolled as 'A' class member and others who have interest in the mortgaged property are admitted as 'B' class members.

Central Land Development Bank (CLDB)

These members of the CLDBs are the PLDBs and a few individual promoters. It grants long-term loans to agriculturists through the PLDBs and branches of CLDBs. It raises funds through floating debentures, which are guaranteed by the State Government. When PLDB obtains loan from the CLDB, it assigns the mortgage deeds obtained from the borrowers to the CLDB. The CLDB floats debentures and raises funds against the security of these properties. The NABARD and LIC subscribe for the debentures in large amounts and the former also extends refinance assistance to LDBs.

7. Explain structural building types.

1. Agricultural buildings

❖ Barn

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❖ Farmhouse

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- ✓ Protecting occupant health and improving employee productivity
- ✓ Reducing waste, pollution and environmental degradation

1.4.2 Principles of sustainable Housing

State any two principles of sustainable housing. (Apr./May 2005, May/June 2006)

Sustainable housing is defined as the meeting of the needs of the person without compromising the ability of future generation to meet their own needs.

The important features or principles of sustainable housing is as follows.

- ✓ The needs of the housing are to be satisfied or fulfilled for the present requirement without affecting the environment.
- ✓ Sustainable development should ensure the environmental protection while taking the housing programs.
- ✓ The sustainable development should ensure the maximum rate of resource consumption.
- ✓ The waste materials should not be harmful to the society.
- ✓ The sustainable development should minimize the reverse impacts on resources and the environment for future generation.
- ✓ The should ensure the stopping of over exploitation of resources, reduce waste discharge and emissions and maintain ecological balance.

- ✓ The sustainable development will support economical growth of poor countries and help to narrow/minimize the wealth gap between the nations and within the nations.
- ✓ The sustainable development should follow an appropriate technology which should be adaptable, eco - friendly, resource efficient and culturally suitable. It involves mostly local resources and local labors.
- ✓ The 3R approach should be followed. i.e., Reduce, Reuse, Recycle. This means reduce the usage of resources, using them again and again and redo the process to utilize again the resources to the maximum extent possible. This 3R approach reduces the waste generation and pollution.
- ✓ Environmental education and awareness should be created. this is possible by teaching the environmental subject from the school stage itself.

1.6 STATE LEVEL ORGANISATION FOR HOUSING

The following are the organizations acting at state level for housing program

9. Tamilnadu Housing Board [TNHB]
10. Tamilnadu Slim Clearance Board [TNSCB]
11. Tamilnadu Police Housing Corporation [TNPHC]
12. Co-operative housing societies
13. Land development bank
14. Adidravidar housing development scheme [TAHDSCO]
15. Building Centre [Located at collectorate of each districts]
16. Private housing finance

1. Tamilnadu Housing Board [TNHB]

TNHB was formed in 1961 to cope up with the increasing demand in housing sector all over the state of Tamilnadu due to urban growth leading to migration to urban areas in search of employment opportunities. It is also the principal town planning and city and Suburb development arm of the Tamilnadu Government. It under the Department of Housing and Urban Development (Tamilnadu)

Objectives

4. To clear all the slums in Chennai and to provide self contained hygienic tenements.
5. To prevent the growth of slums and encroachments
6. To prevent the eviction of slum dwellers by private owners and to provide the slum families with security of tenure.

To provide basic amenities like water supply, street lights, storm water drains, sewer line, etc to the slum areas.

Policies / Strategy

The Three pronged strategy for developing / clearing slums followed by Tamil Nadu Slum Clearance Board are:

- ii) In - Situ plotted development and infrastructure improvement

Wherever In-situ plotted development is feasible, such slums are identified and taken up for in-situ improvement for provision of basic facilities to make the areas habitable and for provision of tenurial rights to the occupiers after getting the land transferred to the Tamil Nadu Slum Clearance Board.

- ii) In-situ tenemental schemes

The slums located in unobjectionable poramboke areas, wherein equitable distribution of space to all is not feasible, are cleared and tenemental (public housing) schemes put up.

iii) Rehabilitation and Resettlement scheme

Wherever neither tenemental nor insitu development is feasible, (as in the case of objectionable porambokes like water ways etc.,) Rehabilitation and Resettlement in tenements in nearby locations with necessary infrastructure is taken up. The cleared site is then restored to its original use.

Other Programmes

i) Tamil Nadu Slum Clearance Board has provided support to individual housing schemes under different programmes like VAMBAY, Rajiv Gandhi Rehabilitation Package etc.,

ii) To ensure holistic development and economic upliftment of the poor, the Board has spear-headed community development activities in the slums, under which it imparts vocational training and livelihood support, specially for the youth and women.

3. Tamil Nadu Police Housing Corporation (TNPHC)

Government of Tamilnadu with a view to raising the level of satisfaction in housing for police personal decided to construct houses for the Policemen and Police Officers. Accordingly this Company was registered under the Companies Act 1956, as a wholly owned Company of Tamil Nadu Government and came into being with effect from 13.4.1981. While the Company was gradually increasing its construction activities each year, the then Government based on the recommendations of Ramanathan Committee constituted to study the viability and usefulness of Public Sector Enterprises and other

1.7 Central Government Organization for Housing

1. Housing Urban Development Corporation (HUDCO)

The was started in the year 1970. In the middle of 1971 it was functioning. The primary aim of HUDCO is Housing, development, improvement and urban development. It acts as an apex body [forum] to decide the fund, investment

required for satisfying the primary aim. HUDCO introduced new schemes for development of the investment. They are as follows

- ✓ Document shares
- ✓ Compound interest income scheme
- ✓ Money doubling scheme in 60 months
- ✓ Monthly income scheme

The funds generated by above methods are used for various HUDCO schemes. Housing agencies, municipalities, public concerns, private agencies which are not coming under the director control of government utilizes the HUDCO funds.

HUDCO scheme benefits many towns and villages as per 1995 and 1996 census.

HUDCO spent rupees 9043 crores for 10556 schemes of workers. They charged 6-13.55 interest for its loan based on the method for distributing the loan on the agency.

Another primary aim of HUDCO is financing for an agency supping the construction materials.

HUDCO gives technical guidance and advices for different agencies. It also implement low cost housing schemes, shopping complex, township and urban development schemes, construction of road, water supply and drainage are also given primary importance by hudco.

Some of the schemes introduced by HUDCO are as follows:

- ✓ House
- ✓ Rural housing
- ✓ Land requisition
- ✓ Construction of community welfare centre
- ✓ Technical improvement
- ✓ Improvement of environment conditions of slums or slum areas
- ✓ Basic health or hygienic conditions

- ✓ Staff housing development
- ✓ Improvement of affected people
- ✓ Housing for poor people in particular people in hills / tribes

HUDCO divides the people into four categories

- ❖ Economically Weaker Section [EWS]
- ❖ Low Income Group [LIG]
- ❖ Middle Income Group [MIG]
- ❖ High Income Group [HIG]

The amount of loan granted, repayment period, interest rates for the above categories HUDCO allocate the fund as follows

- ❖ EWS - 30%
- ❖ LIG - 25%
- ❖ MIG - 25%
- ❖ HIG - 20%

2. Housing Development Finance Corporation [HDFC]

This was started in the year 1976 and run by financial assists of the government HDFC develops housing schemes from the fund collected through the public. It generates the fund by equity shares, insurance premium, and bank loan as per the approval of reserve bank.

It grants the loans for purchasing an immovable property [land and building] and selling it. For shopping complex and commercial centers also bank loans are granted.

It formulates easy installment and repayment schemes to collect more money for house loans. It suggests guidance and advice for selecting a site and purchasing a flat. HDFC also introduced new housing schemes for their employees. It has several banks and collection centre.

3. Life Insurance Corporation [LIC]

LIC provides financial assistance for housing. LIC started a housing finance in the name "LIC House Finance Limited" in the year 1989. These functions with 67 branches and 35% of market share.

It has spent 5500 crores for 30 lakh houses. It simplifies the method of getting a house. It grants loans for the LIC policy holders to construct a new house, for extension of a house, for repairing a house and from purchasing a flat or built - up house or apartment.

4. National Housing and Habitat Policy [NHHP]

In the year 1998, on the eve of the 12th Lok Sabha elections, the BJP and its Alliance partners brought out a 'National Agenda for Governance' for ushering in a dynamic economic growth to bring in quality life for masses. This agenda included issues like Governance, Eradication of Unemployment, Housing for All etc.

Aim of NHHP is to provide "Housing for All", especially benefiting the deprived and the poor.

Tamilnadu municipality byelaws and building rules (1972)

1. Permission

b. For the construction, reconstruction, addition or alteration of a building the permission will not be granted if the clearance between the building and the aerial lines is less than.

- ✓ 1.5m for low tension and 1.75 m for high tension lines measured horizontally in case of accessible portions of the buildings
- ✓ 1.25m for low and high tension lines measured horizontally in case of inaccessible portions of the buildings.
- ✓ 2.5m for portions of the buildings not accessible to the portions measured vertically.

2. Space of buildings

- ❖ Where the street at any place is less than 3.75m in width, the building should not be built within 2m from the center point of the street.

- ❖ No other structure than the steps, fence is permitted in the space between the building and edge of the street.
- ❖ The doors and window shutters should not open Outward Street where the street is 3.75m or more width and the buildings is built along with edge of the street.

3. Dimensions of rooms

- ✓ A height of an average is not less than 2.75 m and 2.1m at any point measured from top surface of the floor to the underside of the roof.
- ✓ A clear superficial area is not less than 7.5m²
- ✓ A width is not less than 2.5m
- ✓ Bathroom area is 1.8m² (1.52 x 1.2m)
- ✓ The water closet or toilet shall be 1 m² (1.2 x 0.9m)
- ✓ The bath cum water closet shall be 2.7m² (1.82 x 1.52m)

4. Ventilation of buildings

Every room intended or used for human habitation (human activities) should have windows and ventilators

- ✓ The area of ventilation should not be less than 1/8 floor area or carpet area
- ✓ Every domestic building constructed for human habitation should have at least one side abutting for a length of not less than 2.5m on an open space either internal/external. Such open space shall not be less than 1.75m in width.
- ✓ Every open space either internal or external should open to sky no construction is allowed in the open space area.

For bath and toilets the area of windows or ventilator should not be less than 0.5sqm.

$$1 \text{ sqm} = 10.75 \text{ sq.ft}$$

$$0.5 \text{ sqm} = 5.38 \text{ sq.ft} [3' \times 2' = 6 \text{ sq.ft}]$$

5. Minimum width

The doorways, windows or passage should have a minimum width of 1m. The door of kitchen, bath and toilet should not be less than 0.6m clear width.

6. Chimneys

Chimneys, flush and sanitary appliances or convenience are to be provided properly in the building.

7. Staircase**a. Width of the stair**

The clear width of the stair excluding hand rail shall not be less 500 mm.

b. Head room [Height from floor to roof]

The headroom should be at least 2.1m measured perpendicular from the nosing (projection on step)

c. Tread and Riser

The riser shall not be more than 175mm and the tread shall not be less than 250 mm. the sum of two risers and the tread shall not be less than 600mm and not more than 625mm. in one flight should be not be any variation in rise / tread. No stairs should be permitted to cut across a window.

d. Landing

The height between the landings shall not be more than 3.75 m

e. Rails

The handrails shall be placed at the height not less than 750mm and not than 1000mm above the projection of step.

f. Ventilation

The passage giving access to the staircase width shall not be less than the stair width. In the passage gives access to more than 1 stair its minimum width shall be equal to the width of the stair +1.5 of total width of the remaining stair width.

g. Passage

Passage width should not be less than stair width. If the passage gives access to the more one stair. Its minimum width shall be equal to width of the stair.

The State and Central government building are exempted from these rules.

1.10 Documents to be submitted for approval of building in municipality

The person who intends or wants to construct, reconstruct or alter or making additional construction in the existing building have to applied for approval of the buildings.

- ✓ Plan
- ✓ Survey filed number, street ward, taluk and district.
- ✓ Signature of applicant and license building surveyor
- ✓ Copy of land document
- ✓ Estimate of building construction.

Documents to be submitted for approval of plan

- ❖ Plan (Floor Wise)
- ❖ Elevation (Front)
- ❖ Sectional View (Floor Wise)
- ❖ Site Plan
- ❖ Key Plan

Details to be furnished in plan

- ❖ Jointary details (Doors, Windows, ventilation, Opening)
- ❖ Area details (Site area, Floor area, Plinth area)
- ❖ Boundary lines in different colors.

UNIT-II

HOUSING PROGRAMS

TWO MARKS QUESTION AND ANSWERS

1) What are the important concepts of the housing scheme?

- ❖ Roominess
- ❖ Flexibility
- ❖ Grouping
- ❖ Privacy
- ❖ Elegance

2) What are the factors planning a housing scheme?

- ❖ Social or cultural needs of the user
- ❖ Cost factor or affordability
- ❖ Climatic condition
- ❖ Geological condition
- ❖ House site should be able to get power supply, water supply, drainage, communication and transport.

3) What are the factors should be consider for the site selection?

- ❖ Land cost
- ❖ Distance from place of work
- ❖ Ease of drainage
- ❖ Location of school, college and public building
- ❖ Wind velocity and direction
- ❖ Annual rainfall
- ❖ Transport facilities

4) What are the Public utility services?

- ❖ Educational institutions
- ❖ Electricity supply
- ❖ Fire stations
- ❖ Gas
- ❖ Hospitals and health centers
- ❖ Local industrial units
- ❖ Market and shopping centre
- ❖ Park and play ground
- ❖ Public buildings like banks railway stations.

5) What are the advantages of cooperative housing?

- ❖ The government should give the priority for the allotment of lands, building materials to the housing co operative.
- ❖ The housing society should construct such houses for which the cost is with their limit of their members.
- ❖ The poor and poor people should bring under scheme and entry of rich people should be discouraged in the housing co operatives.

6) What are the disadvantages of co-operative housing?

- ❖ Non co-operation among the workers
- ❖ Violation of rules and regulations
- ❖ Misuse of powers
- ❖ Improper supervision
- ❖ Improper quality control in construction.

7) Define Slum?

The area is known as slum. Characterized by substandard housing and living condition within a city.

8) What are the causes of slums?

- ❖ Decentralization
- ❖ Economic condition
- ❖ Education
- ❖ Improper use of land
- ❖ Industrialization
- ❖ Lack of zoning
- ❖ Migrants
- ❖ Powers of local authority.
- ❖ Repair and maintenance.

9) What are the effects of slum?

- ❖ Absence of amenities
- ❖ Health
- ❖ Surrounding locality
- ❖ Undesirable spots
- ❖ Working conditions
- ❖ Slum clearance

10) What are the objectives of slum Clearance?

- ❖ To bring down the difference of the living standard of people of various classes
- ❖ To prevent the occurrence of epidemics in the town or city
- ❖ To provide the absolute basic minimum standard of essential amenities for a healthy living.
- ❖ To remove the ugly spot or slum “the town map.

11) What are the methods of slum clearance?

- Complete removal method

- Improvement method

12) What are the important points to be considered improvement method?

- ❖ Amenities
- ❖ Legal aspects
- ❖ Transit camps
- ❖ Unauthorized persons.

13) How to prevent the slum formation?

- ❖ Cheaper housing
- ❖ Compulsion of housing to employees
- ❖ Rules and regulations to construct buildings
- ❖ Restrictions or rent increases
- ❖ Social educations
- ❖ Prevention of unauthorized construction.

14) Define lack of zoning?

If the town is not divided into suitable zones like residential, industrial, commercial the slums may be formed.

16 MARK QUESTIONS WITH ANSWER

1. Explain about modern building / planning.

Modern buildings are planned for specific purpose by giving consideration for site, climate, character and style. The Planning of housing schemes shall follow the existing laws and principles applicable to a wide variety of buildings. Based on creativity of an architect or an engineer those laws and principles within the frame work can be developed. The major factors considered for the planning concept of

housing schemes or such as aspect, roominess, flexibility, grouping, privacy, elegance.

Aspect

❖ The natural sunshine, wind and scenery should be utilized for comfort, hygiene and cheerfulness to the uses of buildings or housing schemes. The room which receives air and light from a particular direction then it is said to have aspect of that direction. For eg. A kitchen should have an eastern side aspect so that the morning sun would refresh, purify the air and remains cool in the later part of the day. The living room may have southern or south eastern aspect while the bedrooms have west or southwest aspect.

Roominess

❖ Roominess is defined as the method of getting maximum benefit that is derived from minimum possible dimension of the room. For example square room of size 3.6X3.6m, a table of size 1.2X1.2m is kept for a purpose. Here only a little space is available around the table. In a rectangular room of size 4X3.2m the same 1.2X1.2m is kept. In this case in the same area of room we have more space for additional use or utilization such as shelves or keeping other things, etc. it is advisable to have a length to breadth of rooms proportionate in the ratio 1.5:1 to 2:1.

Flexibility

❖ Flexibility means use of space for any required purpose conveniently or with alignment. For Ex.

- 1) Separating the living room and dining hall with removable partition like aluminum panels, wooden panels, and prefabricated wall panels.
- 2) Constructing the house in front of the site and leaving sufficient space in the backside for future extension of house.

Grouping

❖ Grouping is defined as maintaining the relationship between the spaces of rooms at the planning stage itself. For eg planning the dining room near to the kitchen. So the cooked item can be easy access towards sanitary units. Location of

store room near kitchen leads to easy access. Similarly administrative section and office are grouped together. Similarly production the quality control, storage and dispatch section is grouped near to each other.

Privacy

❖ Privacy means the nature of free feeling of usage of space. These are of two types. Privacy is ensured by carefully planning the entrance, passage, pathways, etc. in case of housing scheme, the privacy should be ensured by providing all the facilities separately to all the house sites.

(a) Internal privacy:

It means the internal parts of the building have the required privacy from the other part/other rooms.

(b) External privacy:

It means the provision of the potigo, garden, open space, public streets, roads and neighboring buildings.

Elegance

❖ It is the effect produce by the elevation of the buildings and the general layout of the housing scheme. Symmetry gives elegance always. The elegance depends on the character and purpose of the buildings. The elegance incase of housing schemes is brought out by the wider roads and streets, the required proportionate size (length and breadth) of site/plot.

2.3 CONTENTS AND STANDARDS FOR HOUSING PROGRAM

The contents and Standards for housing program contain the following:

1. Cost of the land
2. Availability of public utility services such as water centricity and sewage disposal.
3. Access to parks and playground
4. Agricultural potentiality of the land
5. Contour of land

6. Distance from place of work
7. Ease or way of drainage
8. Location with respect to schools and colleges and public buildings
9. Nature of use of adjacent areas
10. Transport facilities
11. Wind velocity and direction
12. Annual rainfall

Height

The height of the building in the schemes should be in proportion with width of the street or road.

Location

The location of the residential building in housing scheme should be free from nuisances like dust, smoke and smell, moist. The location of the building should be nearer to the means of transport for schools, hospitals, markets.

Orientation**Define Orientation. (May/June 2010)**

The building in the housing scheme should be suitable orientation with respect to rain, sun, wind.

Parks

The building should be located nearer to parks and a placed with easy accessibility with trees and plants should be available for the children without crossing main roads.

Privacy

The housing system should provide maximum privacy to the users.

Security

The buildings in the housing scheme should have safety and security against theft and fire. For this purpose a strong room may be provided for the storage of valuable items.

Space

Floor area as well as cubical contents (length X Breadth X Height) of the buildings should be proportioned with number of persons likely to use the buildings. As per the standard floor area per members. The standard floor area is 4.65m² per member and cubical content is 8.5m³ per member.

Utility Services

The building should be provided utility service like electricity, water, drainage and transport facilities at reasonable cost.

Ventilation

Define Ventilation. (May/June 200)

A roof of the building should be fully ventilated and each room should get enough air and light.

2.4 SITE ANALYSIS

Explaining the context, objectives and contents of Sits and Services. (May/June 2006, May/June 2007)

Make a comparative study of neighborhood and site and services programmes with reference to their contents and standards. (Apr./May 2007)

It is defined as the analysis of the site in all respects before the construction is started. Normally trial pits are taken at various places of the site to know the different kinds of soil and its characteristics. Based on the soil available, a particular type of foundation is adopted. The hard stratum of soil on which the foundation is adopted. The hard stratum of soil on which the foundation is laid is checked for its bearing capacity. The bearing capacity of soil is tested at the side by conducting a plate load test. Similarly the site on which the construction is developed is checked for the facilities like water supply, drainage, transport and communication facilities. The site should not be a place where, the waste materials are dumped.

The site should not be water logged area, i.e., during the rainy season the water should not be stagned on its surface. Similarly the rain water nearby areas should not enter to the site or flow the site to the nearby places. The site selected for construction should be free from air pollution, sound and water pollution. The site should have the accessibility to all nearby places for all its development. The site should not be located nearer to quarries (rock quarries) and industries.

2.5 SITES AND SERVICES

Define the concept of site and Services.(Apr/May 2005)

These are the facilities provided to a site before a particular construction is made. The services to be provided for sites are called sites and services. These services are also called public utility services. The services included the following.

- Educational institutions (near by availability)
- Water supply and Power supply (electricity)
- Fire stations
- Gas
- Hospitals and health centre's
- Local industrial units
- Markets and shopping centers
- Parks
- Play ground
- Public buildings
- Public transport facilities
- Roads and street services
- Proper roads
- Refuse or waste disposal
- Sewage disposal
- Drainage arrangement

- Storm water drainage
- Provisions of shops/ stores
- Street lightning
- Communications/telephone lines and facilities

2.6 NEIGHBORHOODS / NEIGHBORHOODS PLANNING

Define the concept of Neighborhoods. (Apr/May 2005).

Explain the context, objectives and contents of Neighborhood. (May/June 2006, May/June 2007)

Explain Neighborhood planning and its importance. (May/June 2010)

The concept of neighborhood planning is fundamentally American concept/idea. The principal of neighborhood is one is planning for the society and not for an aggregate or group of houses generally the nature of human beings is to be friendly with neighbors and to share their interest.

Neighborhood planning is defined as the planning of expansion of the existing housing or layout near by the / neighbor to the existing layout or housing scheme.

In big towns the neighborhood planning is difficult due to the following reasons.

(i) The neighbors are not dependent on one another, company and help because city life gives a wide variety of facilities and entertainment.

(ii) The neighbors may not have common modes or ideas and habits of living

Neighborhood planning is to form various physical units of residential areas in which people live with a rank of a life style live.

2.7. OPEN DEVELOPMENT PLOTS

What do you understands by the term Open Development Plots?> (Apr/May 2005)

The available open land is suitable subdivided into various plots/ sites in a housing scheme and allotted to various persons by making development in the plots.

This is called as open development plot/open plot scheme. The developments are made in the plots include

- Site clearance
- Site leveling
- Protection of plots by providing fence
- Security arrangements
- Garden maintenance
- Plot/site maintenance

Mainly the open development of plots is allotted to slum people or slum dwellers. The precautions to be adopted in the open development plots are

- The area of the plot should not exceed 20-25m²
- The possible alternative designs for the construction of small houses may be provided
- The plots may be given long term lease with necessary condition for cancellation and reentry incase of terms of lease documents.
- The self help combined with use of locally available materials and methods of construction should be encouraged

2.11 CO-OPERATIVE HOUSING

Explain the merits and demerits of co-operative housing. (Nov/Dec 2012)

the history of co-operating housing movement in India is traced in the year 1912. This was seen that the co-operative act was formed.

Bombay took the first initiative in this movement and the first co-operative housing society known as 'saraswat co-operative'. This was registered based on the co-partnership system in Mumbai in 1915. Later the other states adopted the idea of housing society. Number of housing society is largest in maharashtra about 5031, in Gujarat about 3661. This two states account for more than half of total number of societies about 13879 in the country.

Co-operative Housing Socieity

A group of house seeking persons combined and form legal body is known as a co-operative housing society. The society is registered on the co-operative act and works within the rules and regulations imposed and framed by its member. Its working is examined and supervised by government department. The houses constructed through housing society are generally good, decent within the financial limit. The services and facilities provided are better and lead to indirect benefits such as improved hygiene, health and education, etc. mainly the low income people are benefited mostly by their societies.

Objectives of Slum Clearance

Express any tow basic concepts on which slum housing programs are formulated. (May/June 2007)

- To bring down the disparity difference in the living standards of the people of various places
- To prevent the occurrence of epidemics in the town/city
- To provide the absolute basic minimum standard of essential amenities for healthy living
- to remove the ugly spots/slums from the may of town/city

Methods of Slum Clearance

Compare, in a tabular statement, contents and standards of any four slum housing programs implemented in Tamil Nadu. (May/June 2007)

1) Complete Removal Method

In this method badly constructed house re completely demolished and those which are really good are retained. The open spaces are used for road widening, providing the recreation, building of new houses of approval standards.

Advantages

- ❖ Permanent remedy for the slum people
- ❖ Good health condition is maintained
- ❖ Good living environment is created

Disadvantages

- ❖ Costlier method
- ❖ The people are to be provided an alternative housing facility

Consideration

The following points are important when the slum clearance is done

- ❖ The degree of public health hazards involved
- ❖ An economic potential of the land should be maintain

2) Improvement Method

Certain slum areas in which poor drainage arrangement and insanitary environment are present cannot be demolished. They can be improved by filling of low ground, modification drainage arrangement, removal of unwanted structure.

Advantages

- ❖ Minimum expenditure is involved
- ❖ The people can live in the same area

Disadvantages

- ❖ The improvement/modification is required often
- ❖ The people are disturbed when improvement is done frequently

2.13 ROLE OF GOVERNMENT, NON-GOVERNMENT**AND PRIVATE AGENCIES OF HOUSING**

List of the role of public organization in housing programmes. (Nv/Dec 2012)

Discuss the role of private and non/government organizations in housing programmes.

2.13.1 Central Government Agencies

HUDCO, HDFC, LIC, All National banks, Housing Boards, CBRI - Central Building Research Institute, NBCC - National Building Construction Corporation, CPWD - Central Public Work Department, Hindustan Pre-Fabricated Ltd.

1. National Building Organization (NBO)

This is established in July, 1954. NBO is an advisory and coordinating body for all technical matters concerning building and housing. This organization also sponsors research works on various aspects of building materials and sociological and economic aspects of housing. It works with the close collaboration with the planning commission, research laboratories, construction departments and housing boards, etc. NBO is the national agency for collection of building and housing statistics and functions as United Nations regional housing sectors. A number of rural housing wings are working under NBO for research, training and extension work in rural housing and village planning. The organization has liaison cells at Madras, Kolkata, Srinagar, Bhopal, Dispur and Mumbai. It has set up a permanent building exhibition in Nirman Bhavan, New Delhi where building materials and products available in the market and new improved materials evolved by research organizations are also displayed.

2. Central Building Research Institute (CBRI)

This is a registered society under takes research in the field of building size and technology comprising building materials for soil mechanics and foundation engineering, building process, productivity design and functional efficiency of building, architecture and physical planning, fire research, building economics and management. The main object of research is to help engineers and architects, manufacturers of building industry to achieve economy efficiency. Development testing, technical to building industry and other organizations are also the functions of institute.

3. Hindustan Prefab Limited

This is known as Hindustan Housing Factors Limited. Earlier this is the government of India company manufactures pre fabricated houses, specialized in producing pre fabricated RCC components, pre stressed cement concrete, transmission poles, foam concrete panels, partition and insulation blocks. It under

takes wooden joinery works and has standard, precast components for use. The pre-fabricated components for industrial structures makes the saving in steel, pre construction and low cost.

4. National Building Construction Corporation (NBCC)

This undertakes specialized construction works inside and outside country and the number of construction projects in abroad. This corporation has its own mechanical brick plant in Delhi.

5. Central Public Works Department (CPWD)

CPWD designs, constructs and maintain are repairs in all types of building in central government except these belonging to railways, communication, atomic energy, defence service, and all India radio. It also develops architectural landscaping, structural and horticultural fields, civil construction and installation of services. This has an architectural wing, a central design organization for structural design works, field units for the execution of projects, electrical and mechanical wing to handle a variety of service installations.

UNIT-III

PLANNING AND DESIGNING OF HOUSING PROJECT

TWO MARK QUESTION AND ANSWER

1) *Define Demands for houses?*

House is the first unit of society and it is the primary unit of human habitation.

House built to get protection against wind, weather and against physical security of all kinds. It is one of the basic needs of human. So houses are demanded more as per the growth of population.

2) *What are-the importances of housing?*

- ❖ House is place where one can rest, sleep, cook, food and live.
- ❖ In general housing has great external and potentiality in promoting human welfare, social life, economical growth, health of community and various other related aspects of human life.
- ❖ Major parts of means life time is spend in his house.

3) *What are the problems in housing?*

- ❖ Immobility
- ❖ Initial investment
- ❖ Other problems

4) *what are the factors depending upon the nature of demand for housing?*

- ❖ Availability of cheap finance

- ❖ Availability of skilled labors
- ❖ Availability of transport facilities
- ❖ Cost of labor and materials
- ❖ Prediction of future demand
- ❖ Rate of interest on investment

5) Define site analysis or site selection?

Site selection is the process of selecting a site or plot with respect to availability of various facilities in the site. The analysis of any site for different factor is called site analysis, The number of building availability but necessary to select the particular site to the proposed housing scheme.

6) What are the factors based on merits and demerits of all the building sites?

- ❖ Cost of land
- ❖ Availability of public utility such as water, electricity, sewage disposals.
- ❖ Contour of land in relation to building cost.

7) What are the requirements of a layout?

- ❖ Layout should be flexible
- ❖ The layout should contains the requirement of number of housing units and required number of houses
- ❖ The Layout should contain proper load facilities that is from the main road it should be easily approachable
- ❖ The Layout should contain the area reserved for area reserved for residential purpose, parks, playground recreation place, school, community centre, street system, water supply, and drainage and communication facilities.

8) What are the factors governing the dimension of layout?

The factors are size, width, shape and orientation. The factors governing above are:

- ❖ Provide adequate size of building, suitable to the need of the user
- ❖ Accommodate or arrange the plots and sizes, dimensions, as per the requirement.
- ❖ Provide convenient accesses, circulation control open space safety of street traffic
- ❖ Due consideration to the limitation and opportunity of topography
- ❖ Adjustment of boundary of land connection with the layout

9) Define sanitary lanes?

- ❖ When most sewer line exist the sanitary lane or path may be provided with minimum width of 3.6 m i.e. for disposal of refuse in the bank side of the house plot.

10) What are the recommendations of layout govern by NBC?

- ❖ The layout plan should be drawn with a scale of 1: 1000.
- ❖ All the plots and layout should have a public (or) private means of access.
- ❖ The layout should be accessible to public street width not less than 6m.
- ❖ For residential and commercial zone all layout of land measuring 0.3 hectares (3000 m²) and more.

16 MARK QUESTIONS AND ANSWERS**SITE PLANNING / DESIGN PROCESS**

Planning and design occur as a process, by which we mean that they follow a logical sequence of actions or events that must be carried out to

arrive at a viable solution. It is a multi-disciplinary problem –solving operation often involving architects, landscape architects and engineers, and frequently may require input from physical scientist as well to address environment issues. It require a logical objectives for some steps, but also allows room for subjective design interpretation at others.

There are several notable models from which we can draw to understand the basic components of the site planning and design process. Kevin Lynch outlines an eight-stage site planning cycle (see Fig. 1) that includes:

1. Defining the problem
2. Programming and analysis of site and user
3. Schematic design and the preliminary cost estimate
4. Developed design and detailed costing
5. Contract documents
6. Bidding and contracting
7. Construction
8. Occupation and management (Lynch 11)

John Simonds outlines a six-phase planning-design process that applies to architecture, landscape architecture, and engineering, This process (see Fig. 2), is organized as follows:

1. Commission
2. Research
3. Analysis
4. Synthesis
5. Construction
6. Operation

There are many variation on these models. They differ essentially in the breakdown of component phases and some, such as Simonds, extend the process to include preliminary contractual agreement and post-construction operations.

1. Research and Analysis Phases:

In this process, the designer can use this general goal statement plus the identification of the site to begin collecting information relevant to the site and the surroundings area and compiling it in a form in which it can be mapped. This data is then analyzed in terms of its implications for development of the site for stated purpose.

2. Program Development:

The development of the program is the bridging step between the analysis and the synthesis or design phases.

3. Design Phase

a. Conceptual Design

Conceptual design begins with functional diagram in which we explore the relationships of program elements and activities. This is first done as "ideal" or non-site related diagrams to establish the best abstract relationships among the various components of the project program. This is essentially a diagrammatic exploration in which the designer may move through a series of alternative arrangements until he/she achieves a solution which maximizes the positive relationships and minimizes the number of conflicts.

c. Site Plan/ Master Plan

Presuming that the project is to go forward, the designer refines the development of the preliminary plan, giving precise form, dimension and indication of materials to the proposed elements. In other words, he/she

precisely locates buildings and paved surfaces, delineates ground forms and planted areas, and indicates necessary utilities.

3.6 FORMATION OF HOUSING PROJECT

The housing projects are formulated under the following five categories

1. Detached / individual house
2. Semidetached houses (Twin houses)
3. Row / Line houses
4. Flats / Apartments
5. Sky scrapers / High rise building

3.7 SITE ANALYSIS

Site analysis is an element in site planning and design is an inventory completed as a preparatory step to site planning, a form of urban planning which involves research, analysis, and synthesis. It primarily deals with basic data as it relates to a specific site. The topic itself branches into the boundaries of architecture, landscape architecture, engineering, real estate development, economics, and urban planning.

Site analysis is defined as the analysis of the site with respect to many factors involved in construction. It is the analysis of various features or advantage available for a site.

ELEMENTS OF SITE ANALYSIS

Numerous elements go into a given site analysis. These elements include location, neighbourhood context, site and zoning, legal elements, natural physical features, man-made features, circulation, utilities, sensory, human and cultural, and climate components. The following elements typically are considered in most sites:

- ✓ **Location:** The site should be related to 1 major streets or landmarks previously existing. Aerial photographs help in this assessment stage.

There should be documentation of distances and time from major places. This should be completed by either driving or walking the distance first-hand.

- ✓ **Neighbourhood context:** Zoning of the neighbourhood is important and information of this type can typically be found at the municipal planning department of the site. Numerous issues at this stage require direct observation. Features of this sort include architectural patterns, street immediate surroundings of the site. The reaction of the surrounding buildings towards the site and people moving around should be analysed. Other important components of the neighbourhood context include an analysis of existing paths (pedestrian, cyclist, and vehicle), landmark and nodes. Landmarks are distinctive sites that provide way-finding for people in the area, and which define the character of a neighbourhood. Nodes are key public gathering places that encourage people to linger and socialize.
- ✓ **Size and zoning:** Site boundaries can be located by either verifying the dimensions physically or contacting the country tax assessor's office. Zoning classifications, set-backs, height restrictions, allowable site coverage, uses, and parking requirements are obtained zoning classifications from a zoning map, which can be located from the city planning department.
- ✓ Infrastructure, social, and political boundaries.
- ✓ **Legal :** Typical legal information can be obtained from the deed to the property, The deed is held by the owner of the title insurance such as the property description, present ownership, and the governmental jurisdiction the site is located in, and the city or county.
- ✓ **Natural physical features:** Most of this information will be derived from the topographic features on the site. A contour map of this magnitude can be located from the survey engineer. Drainage

problems as well as existing natural features of trees, ground texture, and soil conditions on the site should be directly observed.

- ✓ **Man made features:** Features located on the site such as buildings, walls, fences, patios, plazas, bus stop shelters should be noted. The site and location of such features should be directly measured, Documentation of existing historical districts should be made, some of which may already have reports completed. Locating this information can be done through the municipal planning department for the site.
- ✓ **Circulation:** the uses of streets, roads, alleys, sidewalks, and plazas are important in this inventory step. It is not necessarily an analysis of these circulation gateways.
- ✓ **Utilities:** Information for utilities concerning the site can be found through the utility departments and companies in the local area. Generally this company has a print of the drawing of this information needed. Information in this print includes the location of all utilities and their locations around or on the site itself.
- ✓ **Sensory:** Much of the sensory information collected will be done through firsthand experience. This type of information is obtained from sketching and photographs (sometimes aerial photographs). Direct observation of other sensory elements of noise, odors, smoke, and pollutant areas must also be completed.

3.8 LAYOUTS

Enumerate various components of layouts design. (Apr./May 2006)

What is layout design? (Nov./Dec 2012)

The layout is defined as an arrangements of housing sites or blocks in an open land with all facilities like roads street, drains, water supply play ground , park, recreation space, power supply.

In a state the director of town and country planning is the compliant authority to approve the proposal layouts in villages, panchayats and municipalities. In Chennai metropolitan development authority (CDMA) and industrial development corporation hydrabad are the regulatory bodies.

In hydrabad urban development authority is approving the lands.

National Building Code (NBC) Recommendation of Layout

The layout should be draw for the scale of not less than 1 : 1000 (Representative factor 1cm - 10 m all plots or sites in the layout should have a public or private means of access (road).

The layout should be accessible by a public street of width not less that 6m. In residential and commercial zones the layouts of land measuring 0.3 hectares or more.

In following minimum provision for community open space should be made.

15% of the area of layout for open pace.

0.3-0.4 hectare for 1000 persons.

In big layouts the following facilities should also be provided

Facility	Requirements
Education facility	For construction of primary, high school and colleges, etc
Health facility	Construction of clinic, suspension hospitals, health centers etc
Commercial facilities	Construction of shops, vegetable markets, banks, etc
Communication	Construction of post office, telegram office, etc

Essential service	Construction of police station, fire station, power station, pumping station for water supply, sewage disposals plant etc
Social, community and cultural facilities	Construction of buildings for social welfare clubs, theatres, etc

Establishment required	% of total area of layout required
Schools	6-8 %
Shops	1-2 %
Roads	25 -30 %
Recreation spaces	10 %

Amenity required	Scale of provision
1. Nursery school	1 for every 4600 population
2. Primary School	1 for every 4000 population
3. High School	1 for every 16000 population
4. Degree college	1 for every 80000 population
5. Subpost office	1 for every 10000 population
6. Telegraph office	1 for every 100000 population

7. Police station	1 for every 50000 population
8. Library	1 for every 15000 population
9. Theater	1 for every 250000 population
10. Shops	1 sqm for every 4000 population
11. Fire station	1 for 5km radial distance

S.No	Income Group	Dimension of Site	Area in m ²
1	LIG	Gm x 15m (30'x50')	135
		12mx15m (40'x50')	180
2	MIG	12mx18m	216
		14mx21m	294
		15mx24m	360
3	HIG	12mx18m	486
		14mx21m	720
		15mx24m	972
4	Public housing / multiple family plots	90mx90m	8100

UNIT-IV**CONSTRUCTION TYPES AND COST EFFECTIVE MATERIALS****TWO MARK QUESTION AND ANSWERS****1. What is a construction technique?**

- ❖ Vacuum concrete
- ❖ Light weight concrete
- ❖ Waste material based concrete
- ❖ Shot Crete or guniting
- ❖ Guniting
- ❖ Ferro cement
- ❖ Fibre Reinforced Concrete
- ❖ Polymer Concrete
- ❖ Sulphur concrete or sulphur infiltrated concrete
- ❖ Set cement concrete
- ❖ Gap graded concrete
- ❖ No fines concrete

2. Water material based concrete?

- ❖ Organic waste
- ❖ Inorganic waste
- ❖ Industrial waste

3. Types of Shot creting?

- ❖ Dry mix process
- ❖ wet mix process.

4. Types of fibers?

- ❖ Steel fiber reinforced concrete
- ❖ Polypropylene fiber reinforced concrete

- ❖ Glass fiber reinforced concrete
- ❖ Asbestos fibers
- ❖ Carbon fibers
- ❖ Organic fibers
- ❖ Vegetable fibers.

5. Objectives of waste utilization?

- ❖ To improve standards of living and working conditions.
- ❖ To reduce energy cost
- ❖ To increase the efficiency of construction.
- ❖ To minimize the environmental pollution by recycling the waste.

6. Building centers?

A building centre is an organization to apply the organize implementation of cost effective material and technique in the construction by considering the importance of strength, durability, comfort and elegance of any building.

7. Define shot Crete?

Shot Crete is mortar or fine concrete deposited by jetting it with high velocity on to a prepared surface.

8. Functions and performance of evaluation of building centers?

- ❖ The building centers provide shelter for rural people.
- ❖ It provides a convenient and hygienic environment to the poor people.
- ❖ It includes new construction material for which the cost is very minimum.
- ❖ It uses most of the waster materials which cost nuisance to the public building.

9. Cost effective technology adapted to building centers?

- ❖ RAF trap bond.
- ❖ Stabilized mud block
- ❖ Stabilized quarry dust solid wall.

- ❖ Hollow block wall.

10. Define arch corbelling?

Above from doors and windows, RCC lintels are provided instead of these bricks are laid. Bricks on edges forming an arch to support the load above the opening. This is called arch corbelling.

16 Mark questions and answers

4.2 COST EFFECTIVE MATERIALS

State any two requirements of cost effective building materials. (Ma/June 2007, May/June 2006, Apr/May 2005)

The materials that are newly introduced are economical and have many advantages over other type of materials. These materials are called cost-effective modern construction materials. Every material has its own advantages and disadvantage. So the material with more advantages and less cost is called as a cost effective construction materials.

Man and his activities produce a lot of wastes at the same time man consumes many things. The building materials are the largest in terms of weight being above 5 tones per capita per year consumed by a man than other things. The above wastes are disposed at unwanted places, but these base materials become useful resources when they are positioned in wanted places. Today this is to be done in a technologically feasible (possible) economically viable and socially desirable manner. This becomes an existing and challenging field. Scientists, technologists, environmentalists, engineers and economists and others have to play an important role for effective waste management.

The most common chemical elements in the building materials are oxygen, silicon, calcium, iron, aluminum, carbon and hydrogen. Mostly these chemical elements are to be found in abundance in nature as well as most of the waste. To the usage of wastes by converting those into building materials become necessary today.

Utilisation

In India nearly 325 million tones of agricultural and over 250 million tones of industrial wastes are generated annually. Indian cement, building materials and construction industry utilize not more than 15 to 20% of it. In developed countries 40 to 45% is utilized.

The multiple use of utilizing industrial wastes is a important factor. This contains the recycling of acro industrial wastes for the manufacture of industrial waste and components. Value added products from phosphor gypsum, Fluoro gypsum, slag, carbonate and lime sludge, copper tailing, cement kiln dust, red mud, alpha naphtha, polymer composites, manufacture of boards from saw dust, jute sticks, and jute fiber boards, glass reinforced gypsum roads, fly ash polymer composite doors, shutters(or) panels, sisal fiber, cement corrugated roofing sheet etc.,

Objectives of Waste Utilisation

To create employment and income generating opportunities for the poor in rural areas.

- ❖ To improve standards of living and working conditions.
- ❖ Promoting the production and use of affordable building materials, and related infrastructural facilities based on wastes.
- ❖ To reduce energy energy cost
- ❖ To minimize environmental pollution by recycling the wastes.
- ❖ To increase the efficiency of construction by making the supply of building materials at affordable (or) reasonable prices.

The waste materials like fly ash, red mud, phospo gypsum, rice husk are mainly used for the following reasons:-

- ✓ Modernization of building material and construction industry
- ✓ Human resource development in the building materials industry
- ✓ Strengthening industrial and external services.

Well known agencies like American Concrete Institute, CIB, CANMET (Canada), and in India (DST), NTPC (National Thermal Power Corporation)

and BIS (Bureau of Indian Standards) are carrying out the works and research on waste utilization.

4.5 CONSTRUCTION TECHNIQUES

- ❖ Guniting
- ❖ Grouting
- ❖ Plastering
- ❖ Floor Compactor
- ❖ Bar bending

Cement

Recently different types of cements and grades of cements are being used based on the different situations. Earlier 33 grade of cement was used for flooring, concreting and plastering works. Now 43 grade of cement is mainly used for the above works. Higher grades like 53 grade is used for heavily loaded structures, bridge, dam and concrete with heavy traffic.

Repaired hardening cement, high alumina cement, low heat cement or oil cement,

Concrete

The recent construction techniques make use of a particular type of material which is more advantageous and construction equipments giving more accurate results and saving in time. In concrete the special concretes like fiber reinforced concrete, polymer concrete, light weight concrete, high density concrete, high volume fly ash concrete, high performance concrete are used to meet the special conditions and circumstances where ever required.

The fiber reinforced concrete is a concrete with addition of discontinuous, discrete and uniformly dispersed fibers to reinforce the concrete. The fibers normally used are steel, nylon, carbon, polypropylene, glass, coir, cellulose fibers etc.

Ferrocement is made by mixing cement mortar with wire mesh. This is used for water tanks and precast slabs etc.

Construction chemicals like accelerators, retarders, water proofing compound, water repellent are widely used in concrete to improve the specific quality of concrete.

Use of HPC

This is a concrete having high strength and durability. This concrete is made by adding mineral admixtures like fly ash, silica fume and chemical admixtures like super plasticizers with conventional ingredients of cement, sand, coarse aggregate and water. For heavily loaded structures HPC is used.

Grouting

Grouting involves injecting a grout material into generally isolated pore or void space of which neither the configuration or volume are known, and is often referred to simply as grouting.

The grout may be a cementitious, resinous, or solution chemical mixture. The greatest use of pressure grouting is to improve geomaterials (soil and rock). The purpose of grouting can be either to strengthen or reduce water flow through a formation. It is also used to correct faults in concrete and masonry structures.

4.6 CONSTRUCTION EQUIPMENT

1. Earth Moving Equipment

Dozer

Wheel Loader

Hydraulic Excavator

Vibratory Compactor

1. Road making Equipment

Roller

Road Paver

Asphalt Concrete Plant

2. Hauling Equipment

Tractors Trailors

Trucks

Tipper

3. Equipment's for piling/diaphragm walls, marine works

Piling Rigs

Rotary, Piling Rigs/Crane Mounted Rotary Piling Rigs

Piling Winch

File Hammer

Boring Tools

Diaphragm Wall Rigs

Vibratory Hammer

High Pressure Mud Pump

4. Floating Equipment's for Marine Works

Jack up Platform

Cutter Suction Dredger

Grab Dredger

Submersible Dock Barge

Hydro clam Barge

Multipurpose Hopper Barge

5. Concreting Equipment

Batching Plants

Mixers

Concrete Pumps

Transit Mixers

Dumpers

Concrete Placers

6. Slip Form Equipment

Slip form Jacks

Hydraulic Pump

Tapering Slip Form

7. Lifting and Handling Equipment

Cranes

Tower Cranes

Hoists/Winches

4.7 REHABILITATION TECHNIQUES

Guniting, grouting, sealant, crack filler, damp proof materials are used for the various repair and rehabilitation works in construction.

Shotcrete

Shotcrete (also known by the trade name Gunitite) uses compressed air to shoot concrete onto (or into) a frame or structure. The greatest advantage of the process is that shotcrete can be applied overhead or on vertical surfaces without forming. It is often used for concrete repairs or placement on bridges, dams, pools, and on other applications where forming is costly or material handling and installation is difficult. Shotcrete is frequently used against vertical soil or rock surfaces, as it eliminates the need for formwork. It is sometimes used for rock support, especially in tunneling. Shotcrete is also used for applications where seepage is an issue to limit the amount of water entering a construction site due to a high water table or other subterranean sources. This type of concrete is often used as a quick fix for weathering for loose soil types in construction zones.

Limecrete

Limecrete or lime concrete is concrete where cement is replaced by lime. One successful formula was developed in the mid 1800s by Dr. John E.Park. We know that lime has been used since Roman Times either as mass foundation concretes or as lightweight concretes using a variety of aggregates combined with a wide range of pozzolans (fired materials) that help to achieve increased strength and speed of set.

Health Benefits

- ❖ Lime plaster is hygroscopic (literally means 'water seeking') which draws the moisture from the internal to the external environment, this helps to regulate humidity creating a more comfortable living environment as well as helping to control condensation and mould growth which have been shown to have links to allergies and asthmas.
- ❖ Lime plasters and limewash are non-toxic, therefore they do not contribute to indoor air pollution unlike some modern paints.

Sealant

Sealant may be viscous material that has little or no flow characteristics and stay where they are applied or thin and runny so as to allow it to penetrate the substrate by means of capillary reaction. Anaerobic acrylic sealants generally referred to as impregnants are the most desirable as they are required to cure in the absence of air, unlike surface sealants that require air as part of the cure mechanism that changes state to become solid, once applied, and is used to prevent the penetration of air, gas, noise, dust, fire, smoke or liquid from one location through a barrier into another. Typically, sealants are used to close small openings that are difficult to shut with other materials, such as concrete, drywall, etc. Desirable properties of sealants include insolubility, corrosion resistance, and adhesion. Uses of sealants vary widely and sealants are used in many industries, for example, construction, automotive and aerospace industries.

4.8.1 Cost Effective Technologies adopted by Building Centre

1) Rat Trap Bond

Rat trap bond is a technique by Lawrie Baker in which bricks are placed on edge leaving gaps within the wall. The strength of such a wall is the same as the traditional wall but the savings in quantity of bricks and cement mortar is upto 25% and for this bond no plastering is required.

A. Introduction To Rat Trap Bond Masonry (RTB)

A "Rat-Trap Bond" is a type of wall brick masonry bond in which bricks are laid on edge (i.e. the height of each course in case of a brick size 230x110x75 mm, will be 110 mm plus mortar thickness) such that the shiner and rowlock are visible on the face of masonry as shown below.

This gives the wall with an internal cavity bridged by the rowlock. This is the major reason where virgin materials like brick clay and cement can be considerably saved. This adds this technology to the list of Green building technologies and sustainability for an appropriate option as against conventional solid brick wall masonry.

This cavity adds an added advantage as it adds a Green building feature of help maintain improved thermal comfort and keep the interiors colder than outside and vice versa.

The Rat trap bond construction is a modular type of masonry construction. Due care must be taken while designing the wall lengths and heights for a structure. The openings and wall dimensions to be in multiples of the module. Also the course below sill and lintel to be a solid course by placing bricks on edge. The masonry on the sides of the openings also to be solid as will help in fixing of the opening frame.

2) Stabilised Mud Block Walling

Here instead of bricks, locally available mud is compressed into blocks by a hand operated machine along with 5% cement by volume for stabilization and cured with water for 7 days. These wall made up of such blocks required no plastering. The cost saving is more due to 95% mud mortar used for bonding with each other. Some of the multi storied buildings have been built using mud.

3) Stabilized Quarry Dust Solid / Hollow Block Walling

The quarry dust which is available from stone crushers can be used to make cement stabilized compressed block. The hollow block this gives lesser quantity of material for a given size without compromising on the strength. The cost of construction is very much reduced by this method than the cost of traditional cement and brick walls. The airspace in the hollow blocks keeps the building cool in summer and warm in winter. The rat trap bonded walls are called as thermal insulators. The other variance of stabilized blocks include rubble stones compressed together as solid blocks.

4) Filler-Slab Roofing

This concept can be employed in reinforced cement concrete (RCC) roofs of buildings. Here bottom half of the RCC roof slab can have filler material such as old

clay (Mangalore) tiles, country bricks, water bottles or even coconut shells, instead of cement concrete. While laying the roof such filler material is placed between steel rods used for reinforcement and then concrete is spread over it. The strength of such a roof is no way affected by the presence of such filler material which is a cheaper substitute for costly cement. And there is no danger of the filler material falling on the head though it is always an option to plaster the roof from inside at additional direct solar radiation, due to the air trapped between the two tiles, so that such filler slab roof buildings are more comfortable to live in.

8) Prestressed Concrete

Prestressed concrete is a method for overcoming concrete's natural weakness in tension. It can be used to produce beams, floors, or bridges with a longer span than is practical with ordinary reinforced concrete. Prestressing tendons (generally of high tensile steel cable or rods) are used to provide a clamping load which produces a compressive stress that balances the tensile stress that the concrete compression member would otherwise experience due to a bending load. Traditional reinforced concrete is based on the use of steel reinforcement bars, rebars, inside poured concrete.

Prestressing can be accomplished in three ways: pre-tensioned concrete, and bonded or unbonded post-tensioned concrete.

Pre-tensioned concrete is cast around already tensioned tendons. This method produces a good bond between the tendon and concrete which both protects the tendon from corrosion and allows for direct transfer of tension. The cured concrete adheres and bonds to the bars and when the tension is released it is transferred to the concrete as compression by static friction. However, it requires stout anchoring points between which the tendon is to be stretched and the tendons are usually in a straight line. Thus, most pretensioned concrete elements are prefabricated in a factory and must be transported to the construction site, which limits their size. Pre-tensioned elements may be balcony elements, lintels, floor slabs, beams or foundation piles. An innovative bridge construction method using prestressing is the stressed ribbon bridge design.

The advantages of this system over unbonded post-tensioning are:

- ✓ Large reduction in traditional reinforcement requirements as tendons cannot distress in accidents.
- ✓ Tendons can be easily “woven” allowing a more efficient design approach.
- ✓ Higher ultimate strength due to bond generated between the strand and concrete.
- ✓ No long term issues with maintaining the integrity of the anchor/ dead end.

9) Precast Concrete

Precast concrete is a construction product produced by casting concrete in a reusable mold or “ form” Which is then cured in a controlled environment, transported to the construction site and lifted into place. In contrast, standard concrete is poured into site-specific forms and cured on site. Precast stone is distinguished from precast concrete by using a fine aggregate in the mixture, so the final product approaches the appearance of naturally occurring rock or stone.

By producing precast concrete in a controlled environment (typically referred to as a precast plant), the precast concrete is afforded the opportunity to properly cure and be closely monitored by plant employees. Utilizing a precast Concrete system offers many potential advantages over site casting of concrete. The production process for Precast Concrete is performed on ground level, which helps with safety throughout a project. There is greater control of the quality of materials and workmanship in a precast plant rather than on a construction site. Financially, the forms used in a precast plant may be reused hundreds to thousands of times before they have to be replaced, which allow cost of formwork per unit to be lower than for site-production.

Many states across the United States require a precast plant to be certified by the Architectural precast Association (APA), National Precast Concrete Association (NPCA) or Precast Prestressed Concrete Institute (PCI) for a precast producer to supply their product to a construction site sponsored by State and Federal DOTs.

There are many different types of precast concrete, forming systems for architectural applications, differing in size, function, and cost. Precast architectural

panels are also used to clad all or part of a building façade free-standing walls used for landscaping, soundproofing, and security walls, and some can be Prestressed concrete structural elements. Storm water drainage, water and sewage pipes, and tunnels make use of precast concrete units.

4.9 BUILDING CENTRE

Define building centres. (Nov/Dec 2012)

State the concept of building centres. (Apr/May 2005)

Describe the concept and function of network of building centres in India. (May/Jun 2006)

Evaluate different functions and performance of any one building centre in Tamil Nadu. (Apr/May 2005, May/June 2006)

A building centre is an organization to use cost effective materials and techniques in construction by taking into account strength, durability, comfort and elegance of any building. The building centre forms low cost technologies with very good quality in construction. This low cost technology reduces the cost of construction without affecting the quality.

Cost effective technology is a collection of methods or strategies that use innovative materials and techniques to construct building at a cost less than a cost of current methods of construction. The main aim of such technologies is to save the money and time without compromising on strength, durability, comfort and elegance of any building. So building centre is an organization to implement cost effective materials and techniques in construction by taking into account strength, durability, comfort and elegance of any building. This building centre form low cost technologies with very good quality in construction. Low cost technologies reduce the cost of construction without affecting the quality.

Objectives

The Setting up of Building Centres is an institutional development approach for the extension of improved low-cost building technologies through skill upgradation of local artisans and training of urban and rural youth, at State, district

and block levels. Low-cost building technologies to be propagated through these Building Centres will have to be carefully identified on the basis of local needs, resources and environment, The following will be the broad areas of action.

- (a) Upgradation of traditional technologies will be one of the major concerns of the Building Centres. Development and manufacture of established mud-blocks by using small quantity of lime and cement, making the traditional thatched roofs in the rural areas proof and fire resistant by adopting various methods and such other measures will be propagated by the Centres.
- (b) Development of skills for pre-fabricating low-cost building components with efficient utilization of steel and cement, like RCC sanitation rings and ferrocement water tanks, hollow blocks, stone blocks, channel roofing system, fibre concrete tiles etc. would be the major thrust area in these Centres.
- (c) Encouraging building components using wastes and recycled materials would be another major concern of these Centres.
- (d) Various manufactured low-cost building materials like asphaltic roofing sheet, Sulabh Sanitary wares, siporex components etc. can be stocked by the Building Centres and sold to home builders at reasonable prices.
- (e) The local artisans and unemployed youth will be trained in the use of low-cost building components and improved tools and equipments developed by building research institutions etc. so as to 'upgrade their skills.
- (f) The Centres will also promote low-cost house designs which relate to the life style of the local people.

UNIT-V

HOUSING FINANCE AND PROJECT APPRAISAL

TWO MARK QUESTION AND ANSWERS

1. Appraisal by specification.

In this method the, materials and labor used for construction are checked for the standard specification. The standard data prepared already is used as a guideline for the Appraisal.

2. Appraisal by the

The Persons with sufficient technical knowledge and qualification are involved in construction. They are controlled by project manager or project head, who is very well experienced and has sound technical knowledge in all parts of construction.

3. What are Housing finance.

- a. Issue of house loans
- b. Rent Supplements
- c. Long Term loans in easy installments
- d. Tax Relief.

4. Documents for housing loans.

- a. Cost estimate of the project
- b. Parent or mother documents
- c. Income certificate
- d. Approved building plan by the competent local authority

5. Define Cost recovery

The loan amount is made to be paid by the house owner by selling the house to others to get back the loan amount. This is called cost recovery

6. What is loan recovery

After the release of the repayment starts the repayment in the form of EMI (equated monthly installment) for the duration of 10 to 15 years based on the income level of the client. This EMI includes principle amount and interest for the loan.

7. What is cash flow analysis

The analysis of flow of money or requirement of money to be well in construction at various of the work is called cash flow analysis.

16 Mark questions and answer

5.1 PROJECT APPRAISAL

Once projects have been formulated, it is the job of the planner to appraise the project. That is, decide if the project should be:

- ✓ Recommended for funding; or
- ✓ That further work is required of a minor nature that can be completed quickly and then be considered for funding; or
- ✓ That project requires further work and should be considered for funding in a future year; or,
- ✓ Due to the complex nature of the project, feasibility needs to be undertake; or
- ✓ That the project should be rejected.

Feasibility Studies

Most donor funded projects involve a feasibility study, usually undertaken by external technical assistance, to provide sufficient information to make a funding decision. Any Project that is appraised as needing a feasibility study should then be modified and included in the approved list of projects clearly tiled as a feasibility study.

5.2 APPRAISAL METHODOLOGY

Projects are appraised under 3 headings: Relevance, Feasibility and Sustainability. Using the information supplied in the project profile from, the

Logical Framework Approach is used to assess the quality of the project proposal, assess the gaps in information supplied in the project profile, and decide which Appraisal Outcome should be assigned to the project, including if a feasibility study is needed. Ideally, issues of relevance, feasibility and sustainability were already addressed during project identification and formulation. However, many project proposals will not contain sufficient information.

Therefore, the appraisal involves:

- ❖ Editing the proposal into a logframe format to assess the Relevance, Feasibility and Sustainability of the project, or
- ❖ Checking the Relevance, Feasibility and Sustainability of a Log frame where one has already been prepared (for example, with a donor sponsored project).

The Logframe will assist to determine:

- ❖ The adequacy of the target group description and problem analysis.
- ❖ The relationship between stakeholders, identified problems, and the proposed project intervention.
- ❖ The Completeness and coherence of project objectives, and the adequacy of assumptions.
- ❖ The extent to which mechanisms to build sustainability have been incorporated into the project's design.
- ❖ The adequacy of the proposed monitoring system.

The output of this analysis is a set of questions concerning the project's Relevance, Feasibility and Sustainability. If the project is large or complex and many questions remain, then these questions could be incorporated into the Terms of Reference for a Feasibility Study.

Relevant:

- ❖ Consistent with the policy and programming framework;
- ❖ Within the institutional capacity of the project sponsor to implement
- ❖ Addressing key problems of the sector or stakeholders, and takes account of key crosscutting issues such as gender and the environment);
- ❖ Complements or is consistent with other ongoing and planned projects, programmes or recurrent activities

Feasible:

- ❖ Strategy adopted by the project is realistic and within government policy (e.g. does not conflict with a private sector driven growth strategy)
- ❖ The “hierarchy of objectives” make sense and are logical (Project Objective, purpose, results and activities);
- ❖ Cost estimates are sound
- ❖ Assumptions made by the project are justified (the planner may have to identify these underlying assumptions during appraisal)
- ❖ The project implementing agency has the management, coordination and financing arrangements to implement the project (including availability of complementary recurrent funds if required);

Sustainable:

- ❖ There is adequate ownership of the project by project beneficiaries
- ❖ Policy will remain supportive after the project has ended.
- ❖ Technology is appropriate
- ❖ Environmental concerns have been addressed.
- ❖ The implementing agency is able to provide follow-up once the project has ended.

- ❖ That any financial or economic analysis is reliable (e.g. a cost benefit analysis)

Professional judgment must be applied in determining whether or not all appraisal criteria are relevant /applicable to the particular project or programme in question.

5.3 APPRAISAL OF HOUSING PROJECT

Explain the method of appraisal of housing projects. (Nov/Dec 2012)

It means the checking of the housing project with respect to the specification and quality of construction, materials, labour, time (project duration) as per the pre-plan schedule prepared already. The following important points are considered in housing projects.

- ✓ The materials used in construction are to be checked for its quality by testing them in laboratories.
- ✓ The different types of labour involved in construction like skilled, unskilled labor etc., are to be engaged in construction based on the specification, norms and standards as prescribed earlier.
- ✓ The housing project is to be completed with is the specified or stipulated time.
- ✓ Unnecessary delay in supplying the materials, carrying out any labour work should be avoided.
- ✓ Quality control is excised by a technical team containing diploma engineer, graduate engineers, architects and specialized fields like structural engineers, environmental engineers, etc.,
- ✓ The finance invested should be properly utilized for housing project. This should be checked by a accounting department.

In general the success of any housing project is mainly with appraisal of the housing project.

After the housing project is sanctioned or approved, the loans are granted to execute the project the method of checking housing project as per the plan and specifications regarding the quality of materials, type of labour, completion of project in time is called appraisal of housing project.

In appraisal the following points are important.

1. Construction or building material

In the housing project any material like brick, stone cement, sand, wood 20mm and 40mm; wood and steel etc are used for each work. The specifications are given these specifications are to be checked by the qualified personnel or engineers.

For example:

Brick means first class brick and its proper size and shape are to be followed as per the specification similarly for aggregates the grading or aggregates size and shape of aggregates are to be followed as per specification.

2. Appraisal of labours.

For each and every stage of construction work, the suitable laborers are to be engaged in the work.

For example:

Stone masonry work

First class mason, second class mason, mason I, mason II etc required are to be correctly identified and engaged in the work. Similarly the skilled labour for skilled works and unskilled labour for unskilled work are to be correctly used in the work.

The work output or the labour work completed by a labourer in a day or quantity of work is to be verified and whether the wages paid are correct according to

the out turn or the work. For each type of work, the quality of work of labour is to be checked. This is called of labour in housing project.

Quality

The quality of the construction work is table checked at each and every stage for this the lab test are in situ test (test in site) may be carried all to ensure the quality. After construction also the quality should be ensured. For the amount is retained by the department or house owner. And there is no fault or damage in construction and the quality is correct and then after some time that retained money is given back to the constructor.

Fiance

The fund required to carryout the project at different stages of the work are to be accessed earlier then the money is spent as per the different types of works.

Time

The time taken to complete the project correctly maintained and followed. If the work delayed, the interest and penalty for the loan one paid unnecessary. For this the network diagrams, charts are prepared for any housing project and every activity of work is to be checked and compared with the bar chart for completing in time.

5.4 PROJECT FINANCING

This stage of the project cycle involves securing finance for the project, either through the Government budget, or through aid donor funds. Once new projects have been approved, discussions are held with donors to secure their commitments to funds the projects. At a later stage, projects that have not secured donor funds are forwarded for financing in the budget.

5.5 HOUSING FINANCE

Housing finance is done by state government departments like Tamilnadu Housing Board, Tamilnadu Slum Clearance Board, Tamilnadu Police Housing board (TNPBH), and development banks, provident fund loan (PF house loan), housing finance for group housing scheme for Aadhidravider development, building centre at all district collector offices. Private organization, limited companies are also

granting loans for housing but the interest rate for finance is higher than other central and state Govt.department.

Central Govt. departments like HUDCO, HDPC, LIC etc also grant loans for housing projects.

Banks

All nationalized and private banks also provide housing finance facilities. All the State Govt., Central Govt., private, departments and bank provide housing finance it purchasing land

- ✓ To construct new houses
- ✓ To purchase a flat in an apartment
- ✓ To purchase an individual houses
- ✓ To extent or additional construction
- ✓ To repair or maintain the houses
- ✓ For land development by layout formation

It also provide housing finance for facilities like water supply, power supply, arrange

road facility, communication and common facilities line park, playground, indar stadium, recreational club etc

The housing finance is investing the money carrying out any housing project.

Various methods are:

- 1) Rent supplement.
- 2) Long term low interest loans
- 3) Public subsidized housing
- 4) Tax reliefs
- 5) State insurance for home mortgages
- 6) Mortgages - pledging of land or any property to the bank for getting loan.

HUDCO, HDFC, LIC, GIC (General insurance corporation housing societies, Bank,

Private loan facilities for the people intending to construct their houses in a housing project.)

5.6 HOME LOAN

Home is an integral part of an individual, who since his / her birth and childhood, dreams to have living space of his / her own. Once in a lifetime investment requires loan to accomplish it and that is how the home loan comes into scheme of things. Buying a home is dream for everyone. Owing to the rising price of properties, it has almost become impossible for an average earning person to buy a home on a lump sum payment. Therefore, the concept of home loan has come in existence. There are plethora of housing finance companies and equal number of banks that offer home loans. The task of selecting one company and one offer for home loan amidst the thousands available options have become a very complex task owing to the burgeoning housing finance market in the country. Apart from this, there are intricate business jargons and technicalities that make this task more difficult. In this study, so that when a person applies for the home loan, he / she can understand the basics and help themselves remain away from the duping elements in the market.

Importance of Home Loan

- ❖ The need for home loans arises not because property prices are heading upwards all the time but because home loans make great. Sense from a long-term savings perspective. Not only are home loans a handy tool for the common man to own a roof over his head but they also help save money in the long run.
- ❖ With skyrocketing real estate prices, people are increasingly opting for housing loans to acquire their dream home. Interest rates are coming down all the time and the banks and the housing finance companies are literally falling over each other to lure the prospective home-seekers.
- ❖ Notwithstanding the tax breaks and generous lending rates, a lot of people still cannot arrange resources for the down-payment, which

comes out to be at least 15 per cent of the property value. Taking cognizance of the situation, Banks are 100 per cent funding is provided for select properties. These lucrative offers are other major reasons for why people are opting for loans.

- ❖ Even if one can afford to buy a home with one's own money, loans should be availed because they act as good saving instrument. According to industry estimates, the long term average return in investing in a home is about 20% p.a. while the average cost of borrowing funds in the market today is about 7% p.a. (considering all tax breaks.)
- ❖ For salaried employees, housing loans are the best way to avail of tax benefits. Many people simply go for the home loans in order to avail these benefits. Interest payments up to 1.5 lakh on housing loans are deductible from the taxable income and there is a further deduction of taxable income maximum up to 1 lakh against repayment of principal portion per annum. In case a person stays in a rented house, the cost of the loan will be nearly zero per cent since he will be saving a decent amount on rent.

All the banks offer many types of loan and advances to the customers like retail

loan, term loan, working capital finance, overdraft, export import finance and project finance. Since this study is based on home loan and home loan is part of retail loan various types of retail of retail loan are explained in 5.1.6.

5.6.1.Types of Retail Loans

Bank offers a wide range of retail loans to meet customer diverse needs. Whether the need is for a new house, child's education, purchase of a new car or home appliances,

Home Loan

Home Loan is available for Purchase of new / old dwelling unit, Construction of house, Purchase of plot of land for construction of a house. Customers repaying a loan already taken from other Housing Finance Company /

Bank. Repayment period up to 25 years (floating rate option). Also for Repairs / Renovations / Improvement / Extension of Home and for Furniture, Fittings and Fixtures.

Home Loans to NRIs / PIOs

Banks have also designed housing loan facility for NRI / PIO. Customer opt for Flexi Rate plan to hedge the interest rate risk by breaking the loan into two separate accounts, Free property insurance and personal accident insurance. Borrower does not pay pre-payment / foreclosure charges for part as well as full prepayment (when repaid from own sources by the borrower.)

Interest Subsidy Scheme For Housing The Urban Poor (ISHUP)

“Affordable Housing for all” is an important policy agenda of Government of India and accordingly the Ministry of Housing and Urban Poverty Alleviation (MH and UPA) has designed an Interest Subsidy Scheme as an additional instrument for addressing the housing needs of economic Weaker Section (EWS) and Low Income Group (LIG) segment in urban areas. The scheme envisages the provision of interest subsidy to EWS and LIG segments to enable them to buy or construct houses.

Loan Against Future Rent Receivables

Loan against future rent receivables has been developed considering the growth potential in the real estate in various metros and urban areas, where many commercial properties / shopping malls are being developed and the owners approach banks for loans against securitization of future rent receivables from such properties. Loan covers the target groups, viz. owners of immovable properties and the minimum and maximum loan limits are based on actual rent income received during the particular year.

Mortgage Loan

Bank gives loan to the customer an innovative combination of a loan and overdraft facility with flexible repayment options against the security of customer's immovable property. Benefits of this loan are ideal use of idle property – generate additional income from idle property, customer withdraw money as per their need and save on interest cost, deposit surplus money / regular income / salary and save

interest, flexibility to withdraw money deposited earlier. Banks also provide either as overdraft or demand loan as per the customer's need.

Types of Home Loan

Various kinds of home loans are available in Indian. They are described below:-

Home purchase Loan

These are the basic home loans for the purchase of a new home. These loans are

given for purchase of a new or already built flat/bungalow/row-house.

Home Improvement Loan

These loans are given for implementing repair works and renovations in a home that

has already been purchased by the customer. It may be requested for external works

like structural repairs, waterproofing or internal works like tilling and flooring,

plumbing, electrical work, painting etc.

Home Construction Loan

These loans are available for the construction of a new home. The documents required by the banks or bank for granting customer a home construction loans are

slightly different from the home purchase loans. Depending upon the fact that when

customer bought the land, the lending party would or would not include the land cost

as a component, to value the total cost of the property.

Home Purchase Loan

Home Extension Loans are given for expanding or extending an existing home. For

example addition of an extra room, etc. For this kind of loan, customer needs to have

requisite approvals from the relevant municipal corporation.

Land Purchase Loan

Land Purchase Loans are available for purchase of land for both home construction

or investment purpose. Therefore, customer can be granted this loan even if customer

is not planning to construct any building on it in the near future. However, customer

can be granted this loan even if customer is not planning to construct any building on

it in the near future. However, customer has to complete construction within tenure of

three years on the same land.

Bridge Loan

Bridge Loans are designed for people who wish to sell the existing home and purchase another. The bridge loan helps finance the new home, until a buyer is

found for the old home.

Balance Transfer

Balance Transfer loans helps customer to pay off an existing home loan and avail the

option of a loan with a lower rate of interest. Customer can transfer the balance of the

existing home loan to either the same banks or any another banks.

Stamp Duty Loan

These loans are sanctioned to pay the stamp duty amount that needs to be paid on

the purchase of property.

NRI Home Loan

This is a special home loan scheme for the Non-Resident Indians (NRI) who wish to

build or buy a home or land property in India. They are offered attractive housing

finance plans with suitable reimbursement options by many banks in the country.

BANKS, HOUSING FINANCE COMPANIES AND

CO-OPERATIVE BANKS PROVIDE

Home Loans in India

All the nationalized banks, private sector banks, foreign banks and housing finance companies provide home loan in India. Even a number of co-operative banks provide the home loan in India. It is not possible to mention the names of all the co-operative banks in India because their Act and Registrar are different in different states.

Basic process of Availing Home Loan in India

After deciding for availing home loan one should go through the process of home loan which is applicable to customers as well as banks.

Determination of Loan amounts

Loan eligibility is based on two separate calculations:

1. The amount of Loan repayment that a customer can afford to make every month.
2. A specified percentage of the cost of the property.

The amount of the loan sanctioned will be the lower of the two figures arrived at after

making this two calculations.

It is possible that while the customer's income (and hence, customer's ability to repay) could make customer eligible for a higher loan, the bank will almost always cap the sanctioned loan amount at 80 to 90 per cent of the property cost.

1. Repayment Ability - The most Important Determination

Customer's ability to repay is based on income and expenditure pattern. For instants,

if a customer's monthly income is 10,000 and his monthly expenses is 8,000 the customer can certainly pay 2,000 towards any potential home loan he can take. This amount can now be used as the installment amount and the customer's eligibility can be reverse - calculated. The larger customer's repayment capability, the higher will be customer's loan eligibility.

2. Determination of Income

Banks need to be sure about income stability of customer. Which is why, they may

not consider the following categories of income while calculating loan eligibility:

- ✓ Performance bonus, medical reimbursements or leave travel allowance, as these are not certain, any case annual perks are not available every month to help in monthly repayments. Some banks, however, are willing to consider these amounts either partially or fully as 'income'.
- ✓ Overtime may be of temporary nature. Again, if the overtime is shown as being received consistently for a long period of time, some banks may consider at least a part of this as 'income'.

- ✓ Interest income since the underlying investments on which these incomes are earned may be liquidated to pay for customer contribution required towards the cost of the house. But if a customer can convince some bank that the interest income will remain even after customer have bought the house, the bank may be persuaded to include the interest income while calculating loan eligibility.
- ✓ Conveyance or entertainment / other allowances paid in cash through vouchers, unless customer regularly deposits the cash reimbursement in his/her salary account. Banks will hesitate to consider it for a loan since they have no document to verify whether such an allowance is indeed paid.
- ✓ Earnings form non-verifiable sources such as tuition / tailoring are not considered as 'income' by the banks unless business of this kind is carried on in a verifiable manner.
- ✓ Agricultural income, since this is non - taxable and non - stable as well, most banks do not give this any weightage or give significantly lower weightage.
- ✓ Rental income is being consistently received and shown in the income tax (IT) returns and copies of the rental agreements are available, banks may consider part or whole of this as 'income'.

If a customer is a salaried employee, some banks apply the normative percentage on the gross salary, while some apply it on customer's net salary. Having said that, most banks go by gross salary s the net salary varies from month to month (deduction of festival advances, medical reimbursements given, or grant of leave travel allowance that month). These banks allow a smaller percentage of customer income as available for payment of loan installment; while those applying it on net salary allow a higher percentage of the salary.

In case of customer is self - employed, the difference in eligibility norms can be glaring. Some banks strictly consider only returned income, that too an average of last two or three years of income, to smoothen out any sharp increases in reported incomes.

Some banks will add full half of the depreciation to calculate the basis income. Recognizing this, quite a few banks have evolved eligibility norms that work around these issues. Let us call these banks 'self - employed - friendly banks'. Some of the things they might have for calculating eligibility norms that are self - employed friendly are:

- ✓ Considering customer's 'actual income' as multiple of customer's 'disclosed income'.
- ✓ Estimating customer's 'actual income as a percentage of 'gross receipts' and ignoring customer's 'disclosed income'.
- ✓ Clubbing the income of entities controlled by customer such as private limited companies or partnership firms in which customer have substantial stakes or are a partner by making such entities joint borrowers to the loan.
- ✓ Some banks do not consider that part of income which forms customer's yearly investment which is allowed as deduction under section 80C. This amount is not considered as income. However some banks have considered this as income if investment is liened by bank authority.
- ✓ Most foreign bank are 'self - employed friendly' on the above lines. Most bank do empower local level official with discretionary powers to enhance loan eligibilities based on their subjective assessment of customer's true income.

3. Clubbing of Income of Relatives

Eligibility is also calculated by clubbing the customer's income with that of his relatives. All bank allow clubbing of the spouse's income to work out the loan eligibility. In such cases, they insist on making the spouse a joint borrower (or coborrower).

The basic premise behind using pooled incomes for calculating eligibility is that both parties will actually combine their income and pay off all expenses (including the home loan installment). However, banks are selective in extending this

concept of pooling of incomes to other relations. Some banks allow parents, children and brothers to be joint borrowers.

4. Cost of the property

The bank naturally wants customer to put in a contribution towards the cost of the house so that customer has a stake in its continued maintenance. This also ensures that if the value of the house goes down in future, the bank's outstanding loan amount is lower than the market value of the property. The amount the customer is expected to put in is called 'margin money' or 'down payment'. Generally bank gives loan amount of 85% to 90% of the agreement value of the property. Even if a customer's income is enough to justify a higher loan, the bank will give a maximum loan based on its margin requirements.

5. Age of the Building

The down payment can also vary depending on the age of the property. If the property is older, the down payment requirement may be higher. Most banks have a cap on the maximum age of the building at the end of the loan tenure. This would normally be fifty years. So if a customer is buying a property on resale and the current age of the building is thirty - eight years, the probability of getting a tenure higher than twelve years is very low despite the fact that the customer may otherwise be eligible for a twenty - year loan. This reduction of tenure would reduce the loan eligibility.

6. Unaccounted component

In some real estate transactions a portion of the cost is not accounted for in any of the documents related to the purchase. Thankfully, this practice is one the decline especially where property is bought from reputed builders. No bank takes this unaccounted amount in calculating the cost of the property while determining the loan amount eligibility.

7. Resale value

The resale value of a property is taken into consideration before the bank lends money to buy a property. It ensures that in the unlikely event of a default,

should be bank need to dispose the property to recover its dues, the bank is well covered to the extent of the home loan provided. This is more of a problem in case of resale properties and lesser one in case of properties purchase from reputed builders.

8. Independent valuation of the property

Every bank has practiced that bank will not give a loan (or give the loan at a higher rate) when the property is being bought from a relative. Also, the bank insists on an independent valuation of the property and the maximum loan amounts are based on this valuation rather than on the agreement value.

ELEMENTS TO DETERMINE COST OF THE HOUSE

a. Readymade Properties

- ❖ Agreement value for buying the property.
- ❖ Value of amenities provided along with the flat and payment made separately under an amenities agreement. In most cases, the amenities agreement is an attempt to segregate the cost of the amenities to avoid paying the high stamp duty on real estate in India. Most banks restrict the value of the amenities to around 20 per cent of the total agreement value of the flat. However, if the amenities agreement is also stamped and registered most banks will consider 100 per cent of such costs.
- ❖ Stamp duty and registration charges to be paid on the agreement.
- ❖ Initial capital expenses, such as civil work, are to be met with.
- ❖ Some banks will also include transfer charges payable to a cooperative society, deposits required by electricity companies, and separate payments for club houses.
- ❖ Banks would also consider any cost incurred towards purchase of a parking space.
- ❖ Cost of furnishing: In case of specific tie – up with a builder, a bank may include the cost of ready furnishings provided along with the flat. Typically bank will not provide loan for some of the elements of cost such as stamp duty or registration cost. But some banks consider cost such as stamp duty or registration cost include in cost of property.

b. Self - Constructed Properties

Cost of the land, taken as the cost to customer or current market value, whichever is lower. Some bank will not take the cost of the land into account if customers have brought it more than a year ago. Cost of construction as estimated by customer's architect and vetted by the bank, fees paid for obtaining legal and statutory approvals, stamp duty and registration charges payable on agreement.

5.7 COST RECOVERY

Define cost recover. (Nov/Dec 2012)

Evolve a conceptual methodology for the recovery pattern of a housing project. (May/June 2007)

If the quality of material, quality of construct project duration are not maintained or followed as per plan then the cost recovery will be made.

Cost recovery means asking for payment of money for the delaying work, improper quality of construct using materials and labour.

If the repayments are not properly made for the loan and if any delay is caused continuously the cost recovery will be made from the owner the house by the authority issuing the loan.

The loaning authority (loan issuing authority like bank, LIC, or any state govt, or private department grant the loans for housing after obtaining the following documents from the land owner.

The amount of loan sanctioned is then income to them. The loans is divided into three or four installments, after a particular portion of work is completed they release the first installment for this the approved engineer has to give the work completion certificate. Based on the completion certificate, second, third and final installments are released.

The cost recovery starts immediately a first installment is released the recovery in the principal amount of loan and interest for 10 to 15 years based on the repayment capacity of the house owner.

Normally, the nominees are appointed by the house owner. If anything happens to the house owner the nominee is responsible for repayment of loan.

In addition to the income certificate the money savings, fixed deposited insurance policy or any other property or jewels and valuables etc of the nominee of the house owner are also collected by the loan issuing authorizes like banks etc.

If repayment is made not correctly, the nominee is questioned and the notice be send to both or them. Sometimes the nominee or guarantor has to repay the loan from his savings or income or any deposits or policies or nay property that he has in LIC loan.

If the repayment is completely stopped in that case the property will be sold by the department by publications.

EMI means Equated Monthly Installment

EMI - Loan principal amount + interest in equally paid installment for all months.

LIC - Loan Principal amount + interest + insurance policy amount

The cost recovery includes the principal loan amount, interest, penalty or fine and the court expenses etc.

5.8 CASH FLOW ANALYSIS

What is Cash flow analysis ? (Nov / Dec 2012)

Cash Flow

Cash flow is the movement of money into or out of a business, project, or financial product. It is usually measured during a specified, limited period of time. Measured of cash flow can be used for calculating other parameters that give information on a company's value and situation. Cash flow can be sued, for example, for calculating parameters; it discloses cash movements over the period.

- ✓ To determine a project's rate of return or value. The time of cash flows into and out of projects are used as inputs in financial models such as internal rate of return and net present value.
- ✓ To determine problems with a business's liquidity. Being profitable does not necessary mean being liquid. A company can fail because of a shortage of cash even while profitable.
- ✓ As an alternative measure of a business's profits when it is believed that accrual accounting concepts do not represent economic realities. For instance, a company may be notionally profitable but generating little operational cash (as may be the case for a company that barter its products rather than selling for cash). In such a case, the company may be deriving additional operating cash by issuing shares or raising additional debt finance.
- ✓ Cash flow can be to evaluate the 'quality of income generated by accrual accounting. When net income is composed of large non - cash items it is considered low quality.
- ✓ To evaluate the risks within a financial product, e.g., matching cash requirements, evaluating default risk, re - investment requirements, etc.

Cash flow notion is based loosely on cash flow statement accounting standards. It's flexible as it can refer to time intervals spanning over past - future. It can refer to the total of all flows involved or a subset of those flows. Subset terms include net cash flow, operating cash flow and free cash flow.

Sources of cash

1. Internal Sources
2. External Sources

Internal Sources are development by the money rotation in nay business.

External Sources are finance development due to shares and loans.

Sources of cash

1. Share documents

2. Bank loan
3. Selling of a property
4. Any business

Cash In Flow

These contain the following

1. Collecting share document from public
2. By loan documents
3. Bank loan or industrial loan or business loan
4. By sales
5. Profit from external investment
6. By sales of property

Cash out flow

1. Purchase of property
2. Purchase of raw material
3. Issues of loans
4. Current expenses like salary, maintenance etc.

The above cash inflow and outflow are analyze in cash flow analysis.

5.9 SUBSIDY

Compare the two concepts of subsidy and cross subsidy in housing finance.

(May / June 2007)

Differentiate between Subsidy ad Cross subsidy in housing finance (Apr/ May 2005, May / June 2006)

Normally housing project adapted by central govt., housing agencies like HUDCO grant concession in the loan issued for the housing project. The concession or any benefit given to the public in construction of a house is called subsidy.

For example :

Low cost projects and rural housing projects 10 to 20% is given as subsidy to the people. They need not pay these subsidy amounts to the government, balance amount only is to repaid in the long term with low interest.

The backward taluks and panchayats, the govt, provides may housing schemes with subsidy. Similarly, poor peoples, weavers, rural, peoples are benefited by the subsidy scheme.

(or)

Normally for housing projects a benefit or concession is given to the people by the Govt, for the construction of a house is called as a subsidy. A part amount of loan is borne by the Govt. department which is known as subsidy. The remaining part of the loan is around repaid by the house owner.

The central Govt. department like HUDCO, grand's 10 to 20% subsidy for the house loan.

For Example:

The house by the housing board. Like housing board, co-operative housing societies and other agencies are also constructing houses and fix the price of houses in the above method.

5.10 CROSS SUBSIDY

Cross subsidy is concession given to the public at any intermediate stage of construction or at the final stage of the construction.

For example

If the poor people are not able to meet the expenses of construction due to poverty, the Govt. after understanding their position announces some benefits or concession at the inter mediate stages, which is called as cross subsidy.

The people constructing their houses in a backward area or slum area or providing a gross subsidy either in the form of free power supply water supply. etc.

If any disaster like flood, earthquake, landslides, Tsunami, cyclone etc. the cross subsidy is in the form of no repayment of the further installments or the total loan.

If any rural industry or backward are to encourage the rural development or entrepreneur or a small scale industry in a rural location, 15% subsidy is granted by for rural industries, free electricity or reduces of electric charges are granted which are cross subsidy of the government.

The cross subsidy is given to encourage the people who are promptly repaying the loan interest and affected by povety.

5.11 PRICING OF HOUSING UNITS

Briefly describe the methodology for pricing of housing unit (May / June 2006, Nov / Dec 2012)

Normally a price of houses of housing are fixed by the government of housing board on prevailing or present guideline value or more value of load and the actual cost of construction. Based on the various income levels income groups the repayment amount and the price of houses are fixed by the housing board EWS, LIGH, MIG and HIG houses.

The price of the house is also fixed base facilities provided or amenities created in the building. The facilities include the number of bed rooms the size of rooms, attached bath or toilet, water supply arragnments etc.

Actual guide line value – Fixed by registrar office.

Market value – Selling Price

The total cost of the house includes the cost construction of house and the cost of the land. The common facilities like park , playground, community hall, recreational hall, lift provision, security char fencing or compound, temple etc are provided for which the some amount is collected.

5.12 RENTS

Rent is the money collected every month from the tenant people who live by paying rent for houses to the house owner for the various facilities¹ provided in the house the rent is paid every month and initially a deposit is collected from tenant. Normally 3 months' rent is collected as advance. If any damage is created in the building by the tenant while vacating the house suddenly without any prior notice or

intimation to the house owner then monthly rent will be adjusted from the advance amount or any repair work, the advance amount will be utilised.

For Govt. buildings or officers like PWD housing board, co-operative banks, nationalized bank co - operative store, medical shops, warehouses etc, if any building is taken for rent by a govt. the following procedure is adopted.

Calculate the cost of construction

1. Year of construction
2. Cost of land
3. Guideline value or land
4. Market value of land
5. Locality of building such as panchyat village or town, municipality, corporation etc.

By considering the above factor the Govt. department calculates and fix the rent for buildings for a partition 100 period say 3 years.

The Govt. department will fix the rent and an agreement is signed by the Govt. department and the building one in which the rent per month, advance amount to be paid any inner furnishing arrangements self's partitions or modification, yearly % addition of rent, the method of payment or clearly return in the agreement. When the agreement period is ended, it will be renewed or cancelled based on the requirement. During renewal, the rent will be revised.

For bank officers govt servants, house rent allowances(HRA) is paid every money based on the location or the place in which they work, For cities, HRA will be more than other areas since the amount of living is more. Normally all the above details of particular building to be taken for rent of submitted to the higher authority. After getting the approval or permission from the concerned authority, the building will be occupied. If any maintenance work is to be required it has to be carries out by the house owner and if any fault in the tenant side, the charges will become by the tenants.

For example:

If any electrical appliances like lights switches, fans etc are damaged, it has to be rectified and replaced by the new one by the tenant. The tenant has to hand over the building to the building owner in the same manner as when he occupies the building for rent housing is Rs.1 lakh 20% subsidy means Rs.20,999 deducted from the loan, only the balance amount Rs.80,000 is to be repaid by the house owner

For group housing for poor people or EWS economically weaker section, weakers, slum people etc., the subsidy is always given by the department. The subsidy is always given for cost effective construction technologies.

5.13 RECOVERY PATTERN

When the loan or housing finance is arranged for any housing programme, the repayment of loan along with interest starts immediately after the first installment of loan is released. The way in which the loan is repaid within the rest to the department is called recovery pattern.

Recovery pattern is defined as the method of repayment of loan with interest by some clear cut instructions. Similarly when a building is taken for rental purposes the rent has to be paid correctly without any deviation in the agreement. If there is not paid correctly, the deposit amount paid by the tenant will be adjusted for rent.

If the tenant lives without paying the rent or refuses to pay the rent or refuses to vacate the building without paying the rent, the legal action are taken by building owner by filling a case against the tenant.

Sometimes instead of rent to be paid every month, an amount is deposited to the house owner and one can live for a period of 2 of 3 years. After this period, he can pay some more advance or pay the rent. All such things are properly recorded in the agreement.

If the loan amount is not repaid correctly, the department or bank or any corporative housing society will send a notice to the house owner and case is filed against them. The person who is the nominee to the who gives security to the loan will also be questioned and instructed to repay the loan. When, the loan is not repaid for a long period, then the court will ask the department to sell building in public auctions.

In public auction, the people will quote the rates and finally the person who quotes the highest rate which is equivalent or more to the loan amount along with interest and penalty and court charges.

5.14 DOCUMENTS FOR HOUSING LOAN

1. Building plan approved by component authority village.

Condition Monitoring and Operation Assessment (CMOA) - Planning Engineer

Local Planning Authority (LPA)

Panchayat - President

Town Panchayat - Executive Authority

Municipality - Commissioner

Corporation - Mayer

2. Cost Estimation

Local Authority

House Loan

3. Encumbrance Certificate(From Sub register office)

4. Patta or Chitta (Ownership of land, from taluk office)

5. Registry Summary Report (RSR) - Total history of land

6. Legal Opinion (From Advocate)

7. Income Certificate

8. Private Business (Clearance Certificate from Chattered Accountant for last 3 Years)