

UNIT-4.

23/11/2021

Contract:-

It is a mutual (or) legal binding agreement. between 2 parties (or) persons based upon policies recorded in document form.

Lmp

Types of contract :-

① Rate contract :-

- Item Rate contract / Unit Price contract
- Percentage Rate contract

② Cost Contract :-

↳ used in government systems

- Cost plus contract
- cost plus percentage contract
- cost plus fixed fee contract
- cost plus fluctuating contract

③ Lumpsum Contract :-

④ Material contract :-

⑤ Labour contract :-

Item Rate contract :

- It is also known as "Unit Price Contract".
- The total price of the project in the item rate contract is based on the "price of each items unit".
- The contractor is paid as per the rates of items specified in the bill of quantity.
- The construction of the project can be started before finishing the designs, so the total cost of the project will be uncertain at the early stage of the project.

Percentage Rate Contract :

- In this form of contract, the clients department draws up this schedule of items according to the description of items sanctioned in the estimate with quantities, rates, units and amount shown there in.

Cost plus Contract :

- Cost plus contract normally require the owner to pay for all project expenses, like the cost of materials, wages labour & any other project cost. Additionally these types of contracts will also include & agreed upon amount or percentage that covers the builders overhead costs & profit that the owner also pays.

24/11/2021

Cost plus percentage contract

Payment covers both the associated project cost and the builders profit and overhead. The amount paid for the builders profit & overhead is dependent on a fixed percentage of the project cost.

Cost plus fixed fee contract

Payment includes coverage of the associated projects cost as well as a fixed fee that covers the builders profit & overhead.

Cost plus fluctuating contract

In this type of contract, the contractor is paid by the owner the actual cost of construction plus an amount of fee inversely variable according to the increase or decrease of the estimated cost agreed first by the both parties, thus the higher the actual cost, lower will be the value of fee & vice versa.

Lumpsum contract

In this system the contractor undertakes the execution of a specific work for a definite lumpsum amount within a specified time period. On completion of the work, it is checked as per drawing & specifications & if approved the amount is paid to the contractor.

Labour contract :

It means an individual (or) entity that supplies either with (or) without a contract a client employer with worker to perform labour within the clients employers usually coarse of construction work.

Material contract :

In this type of contract a separate contractor will be engaged for supplying materials only. The amount will be paid to the material contractor as per the materials used in the construction.

CONTRACT DOCUMENTS :-

When the Tender of A contractor is accepted, an agreement b/w the contractor and the owner takes place & the documents defining the rights & obligations of the owner & the contractor are attached to the agreement bond & this is called a Contract Document.

Contract Document consists of :-

- 1) Title page
- 2) Index page
- 3) Tender notice
- 4) Tender form
- 5) Schedule of ^{issue} rigid of materials
- 6) Drawings → (plan, s/n, elevation)
- 7) Specifications
 - General (class & type of work)
 - Detailed

Earnest money Deposit
not refundable

"EMD"
(1% to 2%)

S.D = 5 to 10 %

Inclusive of

EMD

① Title page :-

- Name of work
- Name of owner
- Name of contractor
- Contract agreement no. etc.

② Index page :-

- Contents of the agreement with reference pages

③ Tender notice :-

- Brief description of work, estimated cost of work, date & time of receiving tender, amount of EMD & security deposit, time of completion etc.

④ Tender form :-

- The bill of quantities, contractors rate, total cost of work, time of completion, amount of EMD & security deposit.

⑤ Schedule of issue of materials :-

- list of materials to be issued by the owner/department to the contractor with the rates & place of issue.

⑥ Drawings :-

- Complete set of drawings including plan, sfn, elevations detailed drawings etc all fully dimensioned

⑦ Specifications :-

- General " :- which specify class & type of work, quantity of materials.
- Detailed " :- Detailed description of each item of work including materials & method to be used along with

the quality of workmanship required.

→ Conditions of contract :-

- ① Rates of each item of work inclusive of materials, labour, transport, plan (or) equipment & other arrangements reqd. for completion of work.
- ② Amount & form of earnest money & security deposit.
- ③ Mode of payment to contractor including running payment, final payment & refund of security money etc.
- ④ Time of completion of work.
- ⑤ Extension of time for completion of work.
- ⑥ Engagement of subcontractor & other agencies at contractors cost & risk.
- ⑦ Penalty for poor quality & unsatisfactory work progress.
- ⑧ Termination of contract.
- ⑨ Arbitration for settlement of dispute.

⇒ Valuation topic is from backside

4 Unit half syllabus from back side.

Valuation

UNIT A
ECPM

26/11/2021

* It is a technic of estimating the fair price (or) value of the property such as building, land etc.

Purpose of Valuation :-

- 1) Buying and selling
- 2) Taxation
- 3) For loans
- 4) Insurance policy
- 5) Rent fixation

Terms involved in Valuation :-

Technical Terms

- ① Gross income
- ② Net income
- ③ Scrap value
- ④ Fan Salvage value
- ⑤ Market value
- ⑥ Book value
- ⑦ Obsolescence
- ⑧ Capital value
- ⑨ Capitalized value
- ⑩ Sinking fund. (problems)
- ⑪ Registration fund
- ⑫ Depreciation fund

① Gross Income :- Total income of any property without considering expenditure.

② Net income :-

$$\text{Gross income} - \text{Total expenditure} = \text{Total/Net income}$$

③ Scrap Value :- It is the value of dismantled material after completion of life of property.

④ Salvage value :- It is the value of property after completion of its design life without being dismantled.

⑤ Market value :- It is the max. price that can be gained when the property is kept for selling in open market.

⑥ Book Value :- It is the value of property which is booked in accounting book after applying depreciation.

⑦ Obsolescence :- The value of property (or) any structure become less becoz of outdated design.

⑧ Capital value :- Cost of land plus cost of construction.

⑨ Capitalized value :- It is the amount of money whose annual interest at the highest prevailing rate of interest will be equal to net income of the from the property.

(19) Sinking fund :- The fund which is gradually accumulated on annual deposit for the replacement of building (or) the structure at the end of its useful life is called Sinking fund.

$$\therefore I = \frac{S_i}{(1+i)^n - 1}$$

where

$I \rightarrow$ annual sinking
 $S_i \rightarrow$ sinking fund
 $i \rightarrow$ rate of interest
 $n \rightarrow$ 50 yrs
 design life

* problem :-

① A pumping set with a motor motor has been installed in a building of a cost Rs. 2,500. Assuming the life of a pump. as 15 yrs, workout the amount of annual installment of sinking fund required to be deposited to accumulate the whole amount at 4% compounding rate of amount.

Given:- $i = 4\% = \frac{4}{100} = 0.04$

$$S = 2500/-$$

$$n = 15 \text{ yrs}$$

$$I = \frac{2500(0.04)}{(1+0.04)^{15}-1} = \text{Rs. } 124.85$$

$$\approx \text{Rs. } 125/-$$

② An old building has been purchased by a person at a cost of 30 cr. excluding cost of land. Cal. the amount of annual sinking fund at 4% interest, assume future life of building as 20 yrs & scrap value of building as 10% of cost of purchase.

Given :- cost of purchase = 30 cr.
scrape value = 10%.

$$S = 30\text{cr} - 10\% \text{ of } 30\text{cr}$$

$$S = 27\text{ cr.}$$

$$r = 4\%$$

$$n = 20 \text{ yrs}$$

$$I = \frac{27\text{cr} \times 0.04}{(1+0.04)^{20}-1} = 8,90,67,072.58/-$$
$$= \text{Rs. } 890,67,072.58/-$$

⑩ Depreciation fund

It is loss or decrease in value of property due to structural deterioration, such as wear, tear & age.

Methods :-

- 1) Straight line method :
- 2) Constant percentage method
- 3) Sinking fund method
- 4) Quantity Survey method

Straight line method :-

In this method it is assumed that the property losses its value by the same amount every year.

Annual depreciation :

$$D = \frac{C-S}{n}$$

C → cost

S → Scrape / Salvage

n → no. of yrs

Constant percentage method :-

In this method it is assumed that the property will loss its value by constant %.

$$D_p = 1 - \left(\frac{S}{C}\right)^{1/n}$$

$D_p \rightarrow$ Depreciation %.

$$D_n = C(1 - D_p)^n$$

Sinking fund Method :-

In this method the depreciation of the property is assumed equal to sinking fund + interest on sinking fund.

At the year end	Annual Depreciation	Total Depreciation	Book value
1 st yr	A	A	C - A
2 nd yr	A+b	2A+b	C - (2A+b)
3 rd yr	A+c	3A+b+c	C - (3A+b+c)
4 th yr	A+d	(4A+b+c+d)	C - (4A+b+c+d)

Quantity Survey Method :-

On the bases on Surveyor experience there is no special method it depends on purely experienced persons.

Problems :-

- ① A concrete mixer were purchased for Rs. 18,000 in 1984. The salvage value of mixer is Rs. 10,500 in 1989. Calculate the depreciation for each yr. by
- straight line method
 - constant % "
 - Sinking fund method, assuming the rate of sinking fund as 4%.

Sol:- Given

$$C = 18,000/-$$

$$S = 10,500/-$$

$$n = 5$$

$$\text{a) } D = \frac{C-S}{n} = \frac{18000 - 10500}{5} = \frac{1500}{18}$$

$$= 1500 \text{ Rs.}$$

$$\text{b) } D_p = 1 - \left(\frac{S}{C} \right)^{1/n} = 1 - \left(\frac{10,500}{18,000} \right)^{1/5} = 0.1021 \text{ (approx.)}$$

$$D_n = C(1-D_p)^n = 18000(1-0.1021)^5 = D_1$$

$$D_1 = 16164 \text{ Rs.}$$

$$D_2 = 18000(1-0.1021)^2$$

$$= 14515.272 \text{ Rs.}$$

$$D_3 = 18000(1-0.1021)^3$$

$$= 13034.714 \text{ Rs.}$$

$$D_4 = 18000(1-0.1021)^4$$

$$= 11705.173 \text{ Rs.}$$

$$D_5 = 18000(1-0.1021)^5$$

$$= 10511.245 \text{ Rs.}$$

10500 rs only

b) Sinking fund method :

$$\text{Total Sinking fund} = 18000 - 10500 \\ = 7500$$

Sinking fund coefficient

$$(I_c) = \frac{8i}{(1+i)^n - 1}$$

$$= \frac{0.04}{(1+0.04)^5 - 1}$$

$$I_c = 0.18462$$

$$\text{Annual Sinking fund} = 7500 * 0.18462 \\ = 1384.65 \\ = \text{Rs. } 1385$$

At the year end	Annual Depreciation	Total Depreciation	Book value
1st yr (1984)	—	—	—
2nd yr (1985)	1385	1385	18000 - 1385 = 16615/-
3rd yr (1986)	$1385 * 4\% + 1385$ = 55.4 + 1385 = 1440	$1440 + 1385$ = 2825	18000 - 2825 = Rs. 15175/-
4th yr (1987)	$(1385 + 1440) * 4\% + 1385$ 173	$1385 + 2825 + 173$ = 4323	Rs. 13677/-
5th yr (1988)	235	$1385 + 2825 + 4323 + 173 = 5881$ 2501	12119/- 10499/-

Methods of Valuation

30/11/2021

- 1) Rental method
- 2) Direct comparision with capital cost
- 3) Valuation based on profit
- 4) " " cost
- 5) Development method of valuation
- 6) Depreciation " " "

① Rental method :-

- In this method, the net income by way of rent is found out by deducting all outgoings from the gross rent.
- A suitable rate of interest as prevailing in the market is assumed & year's purchase (Y.P) is calculated.
 - This net income multiplied by Y.P gives the capitalized value or valuation of the property.

$$\begin{array}{l} \text{Capitalized value} \\ \text{or} \\ \text{valuation} \end{array} = \text{Net income} \times \text{Y.P}$$

② Direct comparision with capital cost :-

This method may be adopted when the rental value is not available from the property concerned. But, there are evidences of some price of properties as a whole. In such case, the capitalized value of the property is fixed by direct comparision with capitalized value of similar property in the same locality.

③ Valuation based on profit :-

This method of valuation is suitable for buildings like hotels, cinema, theaters etc. for which the capitalized value depends on profit. In such cases the net income is worked out after deducting from gross income of all possible working expenses, interest on the capital investment etc.

$$\text{Capitalized value} = \text{Net profit} \times Y.P$$

Or
Valuation

④ Valuation based on cost :-

In this method, the actual cost incurred in constructing the building or in possessing the property is taken as basis to determine the value of property. In such case, necessary depreciation should be allowed & the point of obsolescence should also be considered.

$$\text{Valuation} = \frac{\text{Original cost}}{(1 - \text{Depreciation rate})} - \text{Depreciation due to obsolescence}$$

⑤ Development method of valuation :-

This method of valuation is used for the properties which are in the underdeveloped stage or partially developed & partially undeveloped stage. If a large place of land is required to

be divided it into plots after providing for roads, parks etc. This method of valuation is to be adopted in such cases the probable selling price of the divided plots, the area req. for roads, parks etc & other expenditure for development should be known.

⑥ Depreciation method of evaluation :-

According to this method of valuation, the building should be divided into diff. parts i.e., ① walls, ② roof, ③ floor ④ windows & door etc. Cost of each part should be worked out on the present day rates by detailed measurements. The life of each of the parts should then be ascertained as per materials used.

Depreciation value of each part is

ascertained by formula

$$D = P \left(\frac{100 - rd}{rd} \right) n$$

rd values

$$rd = 1.0 \text{ (100 yrs)}$$

$$rd = 1.3 \text{ (75 yrs)}$$

$$rd = 2 \text{ (50 yrs)}$$

$$rd = 4 \text{ (25 yrs)}$$

$$rd = 5 \text{ (20 yrs)}$$

$d \rightarrow$ depreciation value

$P =$ cost at present market value

$rd =$ Fixed % of depreciation

$n \rightarrow$ no. of yrs.

Q) A property fetches a net annual income of Rs. 900/- deducting outgoing. Workout the capitalized value of the property if rate of interest is 6% per annum.

Given: Net income = ₹. 900/-

rate of interest = 6% PA

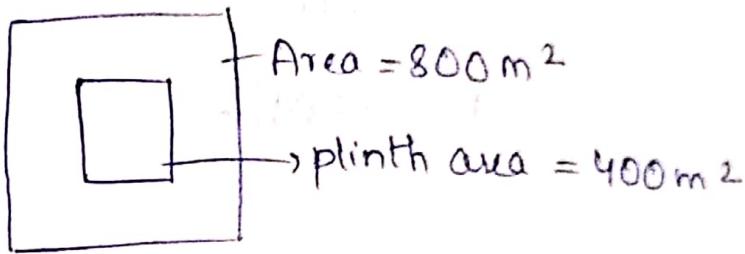
$$Y.P = \frac{1}{R.O.I} = \frac{100}{6} = 16.67$$

$$\text{Valuation} = 900 * 16.67 \\ = ₹. 15,003/-$$

1/12/2021

Q) A 3 storey building standing on a plot of land measuring 800 m². The plinth area of each storey is 400 m². The building is of RCC framed structure & the future life may be taken as 70 yrs. The building fetches a gross rent of 1500/- month. Work out the capitalised value of property on the basis of C.I. net yield cost of land may be taken 40/m² & other data req assumed suitably?

Sol:- Given



$$n = 70 \text{ yr's}$$

Gross rent = Rs. 1500/- month

rate of interest = 3%.

Gross income on rent for annual
annum = $1500 \times 12 = \text{Rs. } 18,000/-$

$$C.P = \text{Net income} \times Y.P$$

Expenses or deduction or Outgoings :-

(i) Repairs & Maintenance @ $\frac{1}{12}$ of Gross income

$$= \frac{1}{12} \times 18000 = \text{Rs. } 1500/-$$

(ii) Municipal tax @ 20% of Gross income

$$= 18000 \times \frac{20}{100} = \text{Rs. } 3600/-$$

(iii) Property tax @ 5% of gross income

$$= 18000 \times \frac{5}{100} = \text{Rs. } 900/-$$

(iv) Insurance premium @ $\frac{1}{2}\%$ of gross income

$$= 18000 \times \frac{0.5}{100} = \text{Rs. } 90/-$$

(v) Other miscellous charges @ 2% of gross income

$$= 18000 \times \frac{2}{100} = \text{Rs. } 360/-$$

(vi) Sinking fund = $\frac{S_i}{(1+i)^n - 1}$

$$\begin{aligned} &= \frac{180000 (0.03)}{(1+0.03)^{70} - 1} \\ &= \text{Rs. } 780.59 \\ &= \text{Rs. } 7801/- \end{aligned}$$

S → cost of the construction
= $400 \times 3 \times 150$
↓
no. of floors
(assume value of construction per m²)

$$\begin{aligned} &1500 + 3600 + 900 + 90 + 360 \\ &+ 781 \\ &= \underline{\text{Rs. } 7231/-} \end{aligned}$$

$$S = \text{Rs. } 180,000/-$$

$$i = 0.03$$

$$n = 70 \text{ yr's}$$

Net Income = Gross Income - Total deduction

$$= 18000 - 7231$$

$$= \text{Rs. } 10,769/-$$

Capitalized value

$$\text{or} \quad = \text{net income} \times Y.P$$

$$\text{valuation} \quad = 10,769 \times \frac{100}{6} = \text{Rs. } 179483.33/-$$

∴ Overall cost of the property

$$= \text{Cost of construction} + \text{cost of land}$$

$$\text{plinth area} \times \text{cost of plinth} = \frac{180000}{179483.33} + 32000$$

$$\text{area/m}^2 \quad \text{cost of land} = \text{area} \times \text{land cost}$$

$$= 800 \times 40 \text{ Rs.}$$

$$= 32,000/-$$

Assume if not given.

$$= \text{Rs. } 179483.33/- - 32,000/-$$

Q) A business man intent to purchase a land of 1,000 m² area located in a big city to develop it into plots of 700 m² each after providing necessary roads & paths & other amenities. The current price of small plots in the neighbourhood is Rs. 30/m². The businessman wants ~~a plot~~ for a profit. of 20%. workout the max. price of the land at which a business man purchase the land.

Sol:

Total area of land

$$= 1,00,000$$

$$\text{deduct } 30\% = 1,00,000 \times \frac{30}{100}$$

$$= 30,000/-$$

$$\text{construction land} = 1,00,000 - 30,000$$

$$= 70,000 \text{ m}^2$$

$$\text{no. of plots size} = \frac{70,000}{700}$$

or

$$\text{construction land} = 100$$

$$\text{plot size} = 700 \text{ m}^2 = 100$$

$$\text{Area} = 700 \text{ m}^2$$

$$\text{no. of plots} = \frac{70,000}{700}$$

Selling price of the plots = Rs. 30/m²

$$= 100 \times 700 \times 30$$

$$= 21,00,000/-$$

3/12/21

Deductions (or) Outgoings

1) cleaning & leveling of the land at 0.25/- per m²

$$= 1,00,000 \times 0.25$$

$$= 25000/-$$

e) laying of roads, parks & other amenities @ Rs. 3/-
per m²
 $= 30,000 \times 3 = 90,000/-$

3) planning & architect (or) Designing & architect
at of selling price
 $= 21,00,000 \times \frac{2}{100} = 42000/-$

4) Other miscellaneous @ 1% of selling price
 $= 21,00,000 \times \frac{1}{100}$
 $= 21000/-$

5) Contract profit @ 20% of selling price
 $= 21,00,000 \times \frac{20}{100} = 4,20,000/-$

$$\text{Total} = 5,98,000/-$$

$$21,00,000 - 5,98,000 = 15,02,000/- (\text{Net income})$$

Net Income = Selling price - deductions

→ selling price of each plot = $\frac{1502000}{100} = 15020/-$

Capitalized value

(or) $= 15,02,000 \times \frac{6}{100}$
valuation

→ assuming rate of interest as 6% (range
6 to 7%)

Ans. To find selling price of 1 plot
Ans. 15,020/-

Q. A building is situated by the site of a main road of chevella city on a land of 500 m². The builtup portion is 20x15 m. The building is 1st class type & provided with water supply, sanitary & electric fittings & the age of building is 30 yrs. Work out the valuation of property.

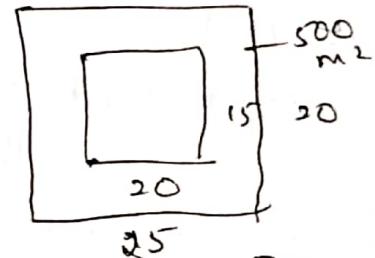
Sol: Given
land area = 500 m² (chevella main road near)

Built up portion = 20x15 m

$$\text{Built up area} = 20 \times 15 = 300 \text{ m}^2$$

→ assuming plinth area rate is
= Rs. 150 per m²

→ cost of builtup area = area × price



$$= 300 \times 150 = 45000/- \quad \frac{500}{20} = 25$$

Age of the building = 30 yrs

$$D = P \left[\frac{100 - rd}{100} \right]^n \quad (\text{by depreciation})$$

For 30 yrs = $\frac{100}{30} = 3.33$

$$= 45000 \left\{ \frac{100 - 3.33}{100} \right\}^{30} = 16,292/-$$

Valuation of the property = cost of land + cost of construction

$$\rightarrow \text{cost of land} = 500 \times 210 = 20,000/-$$

[assuming cost of land = 40/lr per m²]

Value of the

$$\text{property} = 16292 + 20000 = 36292/-$$

RENT FIXATION

6/12/21

The rent of the building is fixed on the basis of certain % of annual interest on annual capital cost & all possible annual expenditure on outgoings.

The owner expects 6% net yield on cost of construction & 4% on cost of land.

Gross rent = Net returns + all possible outgoing

Problem 8:-

i) A building costing Rs. 8,00,000/- has been constructed on a free hold land measuring 100 m², prevailing the rate of land in the neighbourhood is Rs. 1200 per m². Determine the rent of the property if rent of property

a) The expenditure on outgoings including sinking fund. is 30,000 per annum.

b) The owner expects 6% return on the cost of construction & 5% cost of land.

Sol:-

$$\text{cost of construction} = \text{Rs. } 8,00,000/-$$

$$\text{area of land} = 100 \text{ m}^2$$

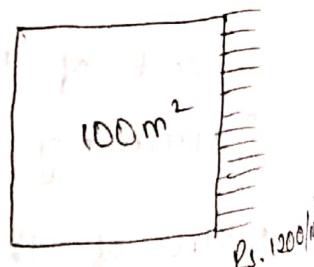
cost of land of

$$\text{neighbourhood} = \text{Rs. } 1200/\text{m}^2$$

Total cost of land

$$= 100 \times 1200$$

$$= 1,20,000/-$$



b) Net return on cost of construction
@ 6%.

$$= \frac{6}{100} \times 8,00,000 \\ = 48,000/-$$

Net return @ 5% of cost of land

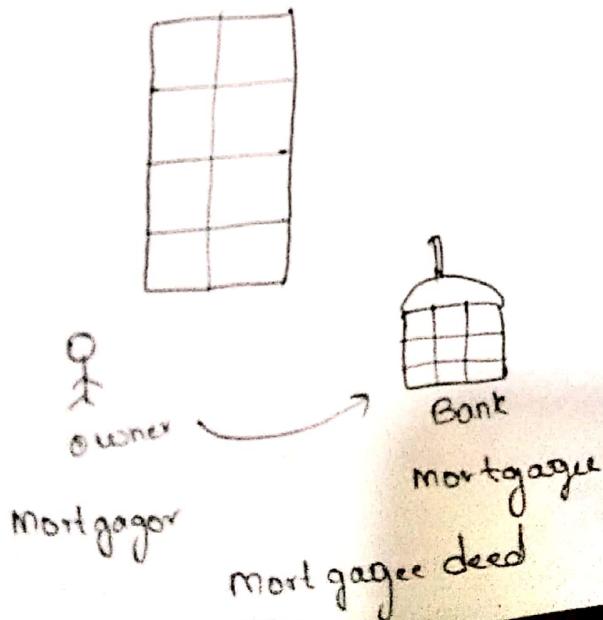
$$= \frac{5}{100} \times 1,20,000 \\ = 60,000/-$$

Total net return = ~~48000 + 6000 + Sinking fund~~
= 54,000/- ~~(30,000)~~
~~= Rs. 84000/-~~

a) Gross rent = net return + all possible outgoings
= 54000 + 30,000
= Rs. 84000/- per annum

Rent per month = $\frac{84000}{12}$ = Rs. 7000/- /month.

Mortgage Lease :-



- The owner of a property can raise loan on interest against the security of his property. Such advancement of money with proper terms & conditions against any form of security is called "Mortgage".
- The transactions, the security & conditions of loan are entered in a document known as "Mortgagee deed".
- The person advancing (giving) money is called "Mortgagee".
- The person borrowing the money is known "Mortgagor".
- Equity of redemption :- It is the legal right of a mortgagor where he can free his property from the mortgagee after repaying the full amount of loan together with interest.