Formula to calculate the hospital land area

**Built Area:**

- This formula calculates the hospital land area depends on the number of beds.
  As per international standard the number of square meter of the built area per bed are = 125m²/bed
- The allowances as per the following:
  1. Allowances for plan (columns, walls ...etc) = 5%
  2. Allowance for circulation (corridors, staircase, lifts,...etc) = 20%
  3. Allowance for utility = 8%
  4. Allowance for general engineering (duct riser, open to sky ...etc) = 3-5%

Total allowances = 36%

- Total built area per one bed = 1.36 x125 = 170 m² per bed
- Ground floor area per bed = Total built area per bed = 170 m² per bed

**External Services:**

- External services (cables, pipes, water tanks ...etc) = 15% of G.F.A
- Foot path = 10% of G.F.A
- Landscape = 15% of G.F.A

Total allowances for external area (except parking) = 40%

Total land area per bed (except parking) = \( \frac{1.4 \times 170}{\text{No. of floor}} \) m²

Assume that number of beds is M beds therefore the total land area will be:

\[ \frac{238 \times M}{N} \quad (1) \]

where M = Number of beds & N is number of floors

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Parking:

The number of parking per bed is 2.5 parking
Area of one parking is 15 m²
Number of square meter per bed is 2.5 \times 15 = 37.5 m²

Note: The parking will be additional to the area calculated in the equation (1) above in case of the parking is external to the building, otherwise will not be added if it is in the basement of the building.

Example: A 200 beds hospital of four floors with parking is
(1) Part of the building.
(2) External to the building

will be given land areas as per the following:-

(1) If the parking is part of the building
Apply equation (1) above \( \frac{238 \times 200}{4} = 11900 \) m²

(2) If the parking is external
For parking area the land needed is 37.5 \times 200 = 7500 m²
Total land area will be 11900 + 7500 = 19400 m²