

ARCHITECTURAL DESIGN SOLUTION : SAVING 40 SQ. FT. (3.72 SQM) IN A BEDROOM

ABSTRACT : In the field of Architecture 'Invention' is a forgotten word and there are genuine reasons behind it. (i) Various techniques of creating living environment have been tried and devised by the common people in various regions of the globe. (ii) The artists create designs with aesthetic values. (iii) The scientists invent and the engineers manufacture various gadgets to ensure better climates inclusive of temperature, humidity, air-change, lighting and acoustics. Similar is the case with building materials. The Architects design built-forms comprising of living environment combining all the three mentioned above. In such a reality, where is their scope of inventing anything new ? The system capable of creating about 40 Square Feet (3.72 Sq. Meters) usable space in a bed room, as described in this article may not be a new invention. But the creation of a bed room in smaller space and the same leading to (a) creation of more accommodation on less land, (b) less construction cost for bed room and (c) less use of energy for climatic management may act as a novel design solution in the apartment buildings for the less affluent users.

INTRODUCTION : Architects are often compelled to design houses in small and still smaller spaces. But neither the domestic need of a family nor the size of human being can be squeezed at will. The double-decked beds used in the western countries have not been accepted in the oriental countries because of lack of privacy. In Bangladesh a household, in general is constituted of a couple, their children and husband's parents. The minimum number of bedrooms with the accommodation of the occasional guests in the living room is four. Even though the traditional 'joint or extended family' is declining, the western system of leaving the parents in elderly homes has not yet been accepted in Bangladesh. Nowadays, the number of children in the educated and enlightened families have reduced to one and maximum two. So, the parents in their old ages have to live in their son's or daughter's families. Such a situation has paved the need of greater number of bedrooms per family. The present design solution paves the way of designing bedrooms at lesser cost.

PROPOSED SYSTEM : A careful look at the three drawings shown below may explain the design solution. A few 'views' have been provided for those who might still find problem in understanding the solution. The design solution has been shown in a 16 Ft. long, 10 Ft. wide and 10 Ft. high space with 9 Ft. 8 Inch floor to ceiling clear height. A 4 Ft. wide horizontal reinforced concrete slab at a height of 5 Ft. 8 Inch has been constructed at the middle. Five inch thick walls have been constructed below this slab to create 4 Ft. 6 Inch high built-in lockers on each side. A cat ladder has been provided for ascending to the

level of the slab. The views enclosed herewith may clarify the solution. Further clarification through architectural plan, elevation, section may be supplied on request.

In the design, the girl's bedroom on the right-hand side and part of the boy's bedroom on the left. The girl's bedroom is about 10 Ft. by 9 Ft. size on the floor level and 10 Ft. by 5 Ft. at the slab level. The room has been arranged with one 6.5X4 Ft. size bed, one reading table and chair, one couch, one cupboard and one built-in locker. The height of the slab over the floor (shown by dotted line) is at 5 Ft. 1 Inch. This slab does not create any problem when the girl sits on or sleeps in the bed. There may be problem if she intends to stand on the bed, where the clear height may be (5 Ft. 1 Inch minus 1 Ft. 6 Inch =) 3 Ft. 7 Inch. A tall girl may face problem in using the locker. By changing the configuration of the slab the headroom at this location can be increased by another 4 Inch i.e. to 5 Ft. 5 Inch. The room on the left is for the boy. This boy's room measures about 10 Ft. by 6 Ft. 9 Inch. on the floor level and 10 Ft. by 9 Ft. at the slab level. This room has been arranged with furniture similar to the girl's room.

AVAILABLE SPACE : The size of the room is 10X16 = 160 Sq. Ft. The available space as shown in the design are as follows :

- (a) Girl's bedroom (at floor level) : 10 Ft. X 9 Ft. = 90 Sq. Ft.
- (b) Boy's bedroom : (i) at floor level : 10 Ft. X 5 Ft. = 50 Sq. Ft.
(ii) at slab level : 10 Ft. X 4 Ft. = 40 Sq. Ft.
- (c) For locker (at floor level) : 7 Ft. X 2 Ft. = 14 Sq. Ft.
- (d) For circulation (at locker roof level) : 7 Ft. X 2 Ft. = 14 Sq. Ft.

Total = 200 Sq. Ft., which indicates 40 Sft (3.72 Sqm) additional space.

LIMITATIONS OF THE SYSTEM : The system proposed here has got some limitations like, (i) the boy has to climb up a ladder to reach the bed, (ii) unlike sleeping in open rooms, the boy and the girl have to sleep in lower-height spaces, (iii) it is not be possible to use normal ceiling fans over beds, (iv) the design may not be convenient for taller boys and girls etc. In reply however, it may be stated that (a) once accustomed climbing ladder may not remain as a problem, (b) sleeping under lower-heights is a question of habituation, (c) the enclosed type ceiling fans may be used over beds or alternately pedestal or table fans may be used. In the working area there is no problem in using ceiling fans, and lastly (d) even though the clear height cannot be increased at will in case of already constructed buildings, the same can be done with more convenience in new constructions by increasing the floor height. The cost involved for this increase may be justified when compared with an additional 40 Sq. Ft. of usable space.

CONCLUSIONS :

The practicing architects in the developing countries are aware that people owning small plots and having requirements of many bedrooms are compelled to leave no vacant space around the building. At times the developers have to abandon projects on potential locations for the reason of inadequate size of the plot. The proposed system may be of ample use in such cases. One great advantage of the system is it is applicable in any old or built-up rooms. In Dhaka city multi-story apartments have been proved to be an effective means of accommodating more people on less land. With the available facilities the built-form designers of the country are striving hard to achieve this goal. Less space, construction cost, cooling load and cost of energy for cooling are their prime considerations. The proposed design may be of help for such built-form designers.
