

C-62: Analysis of usage of construction material in local middle income housing projects based on the economy-type house plans prepared by NBRO

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Based on the booklet prepared by the Human Settlements Division (HSD), NBRO presently, offers the services of selection of appropriate house designs, permit drawings, and cost estimates with a materials list and labour requirements for middle income house builders. This project is carried out based on the concept of affordable housing for individual house builders. Studies are mainly concentrated on the areas of construction material usage and labour utilization in each type of house category ranging from single bedroom houses to three bedroom houses.

The research was mainly based on the cost estimates prepared by NBRO for economy-type house plans. The material usage was analysed in respect of cement, sand, bricks, concrete blocks, rubble, lime, timber, glass (for windows), asbestos roofing, plywood doors, and plumbing items including toilet fittings, tiles etc. The price of materials and labour are based on 1997 market prices. Also labour component was analysed into day labour of masons, carpenters, painters and unskilled labourers.

The methodology adopted/percentage of selected material cost was computed by considering the total 1997 material cost. The labour cost was calculated by taking the total labour cost. Initially, by considering the total cost of house labour and materials ratio it was found that in most of the cases the ratio is 3 : 7 in respect of labour and materials. When the timber requirement is considered, which include the door and window frames, window sashes and timber for roof structure, the highest cost incurred was for timber component in house building. It averages nearly 30% of the total material cost. Hence, cost of timber is almost equivalent to cost of total labour in most cases. The second highest material usage is brick and concrete blocks which is about 23% of the total material cost. Cement usage in house construction is about 10% and for the asbestos roofing sheets house builder spends nearly 15% of the material cost. Rubble for foundation takes about 3½% of the material cost whereas plumbing cost increases from 1% to 6% when local ceramic toilet fittings are included. Unskilled labour requirement is nearly half of the cost of total labour requirement. Masons requirement is about 30% of the labour cost.

The study also reveals that since unskilled labour cost is notable (nearly 50%), if this can be supplied by the builder himself, he can save considerable cost. The cost of material and labour ratio also will be an important aspect for house construction which presently is at 1:2.3.