

## **FACTORS UNDERLYING MATERIAL WASTE IN CONSTRUCTION OF RESIDENTIAL BUILDING FRAMES: A CASE OF NORTHERN REGION OF NAIROBI**

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### **Abstract**

Construction of residential buildings, using conventional methods, leads to manpower waste, financial setbacks to contractors and negative impacts on health, aesthetics and the general environment. Materials in a residential building project accounts for about 70 percent of the overall cost, thus making waste minimization in project implementation a major area of concern. This study set out to establish factors causing material waste and measures for minimizing them in construction of residential building frames in the Northern region of Nairobi. The research was designed as a case study and survey. Northern region of Nairobi was purposively sampled, due to high concentration of residential housing projects. Convenience sampling was used to select project consultants who were handling or had handled projects within the research area. Interviews and structured observation were used in the collection of primary data. Descriptive statistics and thematic analysis were used in the analysis of quantitative and qualitative data respectively. The study identified diverse causes of material waste which were categorized into the following themes: resource material factors, design and site instruction factors, product manufacturing and delivery factors, environmental factors and site production and management factors. The study noted that, 69% of building developers prefer labour contracting in this region, despite its high contribution to material wastage. The study recommends effective supervision, use of trained staff, control of construction activities and materials are crucial to minimization of material waste. The study concludes that a transformation in the approach to construction of residential buildings in the region is necessary in order to significantly reduce material waste and save on the cost of construction.

**Key words:** Building frame, causes, construction, Material waste, Nairobi