

COMPARATIVE ANALYSIS ON DIFFERENT TYPES OF ROOF

ABDUL QAYYUM BIN NAZRI

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Faculty of Built Environment
Universiti Teknologi Malaysia

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ABSTRACT

Roof structures are one of the most important elements in constructing a building. Roof is the element and a structure that is placed on the topmost part of the building. It serves to protect the occupants inside the buildings from the exposures outside the building. There are many types of roof structures available in the market such as the gable roof, ducth hip roof, hip roof, mansard roof, gambrel roof, lean-to-roof, shed roof and a roof combination of any forms. Each of these roofs implicates different costs and consists of different roof components. Basically, this research studies the cost implication for the three types of roof based on its roof components, frame materials and roof finishes. There are two main objectives for this dissertation research which are, (1) to identify the cost components that is involved in the construction of the roof and (2) to compare the unit cost between the specified roofs forms to identify which is economical to construct. These data of costs are obtained from Bills of Quantities or final accounts. These data must be collected from consultant firm or contractor firm based on a project that involves with the specified roof required for this research. Then the comparative analysis was undertaken between the aspects of these three (3) roof forms such as the initial cost, material costs and labor costs for the material used in its structural frame and roof finishes. As a result, the common rafter is the most expensive roof component; the ceramic roof finishing material is the cheapest and lastly, the gable roof construction is the most suitable type of roof construction.

ABSTRAK

Bumbung merupakan salah satu elemen yang penting dalam pembinaan sebuah bangunan. Bumbung merupakan struktur elemen yang terletak di bahagian tertinggi atas bangunan. Bumbung berfungsi untuk memberi perlindungan dalaman bangunan. Di dalam pasaran semasa, terdapat pelbagai jenis dan bentuk bumbung, antaranya adalah '*gable roof*', '*ducth hip roof*', '*hip roof*', '*mansard roof*', '*gambrel roof*', '*lean-to-roof*', '*shed roof*' dan gabungan mana – mana bentuk bumbung. Setiap jenis bumbung tersebut memberi implikasi terhadap kos yang berbeza – beza serta mempunyai komponen struktur bumbung yang juga berbeza – beza. Kajian ini mengkaji tentang implikasi kos untuk tiga (3) jenis struktur bumbung dari segi aspek komponen dalam bumbung, bahan kerangka bumbung dan kemas bumbung. Kajian ini mempunyai dua (2) objektif yang perlu dicapai iaitu (1) mengenalpasti kos bagi komponen yang terlibat dalam pembinaan bumbung dan (2) membandingkan *unit cost* setiap jenis struktur bumbung bagi mengenalpasti bumbung manakah yang lebih ekonomik pembinaannya. Data – data kos bagi setiap bumbung yang dikehendaki diperoleh dari '*Bills of Quantities*' dan '*final accounts*'. Manakala, '*Bills of Quantities*' dan '*final accounts*' boleh diperoleh dari firma – firma juru ukur bahan dan kontraktor. Setelah data – data tersebut dikumpul, maka analisis perbandingan dilaksanakan terhadap tiga (3) jenis struktur bumbung dari segi kos awalan, kos bahan dan kos buruh bagi kerangka bumbung serta kemas bumbung. Hasil kajian telah mendapati bahawa '*common rafter*' merupakan komponen bumbung yang termahal; bahan kemas jenis '*ceramic roof tile*' merupakan yang paling murah dan akhir sekali, bumbung jenis '*gable roof*' adalah pembinaan bumbung yang paling sesuai.