

Construction technology



QS Integrated project Insert of The current great improvement in technology in the design and construction sector has seen the designers move from the traditional methods to the modern methods of construction which brings more durability, aesthetic value and more comfort and style in the construction sector. Modern methods of construction have added value in the construction sector by employing new methods of constructing the frame using precast concrete, in situ concrete, steel or timber (natural sawn and engineered). These especially are required to help improve on the strength and stability, durability and a building that will be free from maintenance as well as for safety considerations. The modern design criteria normally depending on the use of the building is enhanced to consider factors like aesthetic value, clear spans and heights and to achieve the structural economy. Timber being one of the materials very suitable for the construction of frames, has several advantages over the counterparts like steel and concrete. Domestic construction has extensively dominated the use of timber for the construction. This has recently changed since timber is now gaining popularity for other buildings like the multi-storey and the large span single storey. It is renewable for more timber can be planted and harvested all through hence beneficial in conserving environment and also maintains the sustainability of the resource. Timber also has much lower embodied energy and carbon footprint than steel and concrete. Many methods have emerged for timber preparation for use in frame construction such as plain sawn timber or glued laminated-known as “glulam”. Despite the good strength and height ratio that timber has, the sawn timber has its natural weaknesses which include knots and growth rings. It is recommended that the timber used for frame construction should be

prepared well to enhance its suitability for the purpose as well as durability. Timber especially has the ability to curve hence several design structures can be made out of them. The glue laminated timber is always preferable to use than the plain timber since it does not have natural weaknesses brought about by knots and wide growth rings and its size is not restricted to the size of the tree. Given the limited scale of the space available for development purposes and the environmental specifications put in place by the environmental authorities, the effective utilization of the space available here will have to be capitalized upon. The western side of the planning area has the car park which is to be prevented from flooding especially during the winter and rainy seasons. Besides, the general appearance and aesthetic properties of the ground have to be considered in the planning process. This requires that both hard and soft features will have to be employed in the planning requirements so as to avoid both flooding and the destruction of the ground by surface runoff. This move is aimed at improving the environmental conditions of the region as well as improving the quality of the ground being used by the residents. A hard surfaced pavement can be used in constructing the vehicular area and the parking area in order to eliminate the muddy conditions which may arise due to the high rainfall amounts registered during the rainy seasons as well as the ground freezing especially during the winter seasons (Wolf, 2004). Wolf adds that soft surface design features cannot best for this area as the live features used in this case have the capability of absorbing much the rain water into the ground making the ground muddy when run over by the vehicles as they move to the parking area (Wolf, 2004). The hard pavement will ensure that all water flowing over the region does not sink into the ground to lubricate the soil

therein beyond the required capacity thus eliminate cases of water logging in the region. This will effectively help in solving the muddy condition which may arise should the area be left without this. The parking area will be designed in such a way that the region is prevented from flooding by the excess runoffs from the upslope by planning a line of thick shrubs on the upper side of the parking lounge. This shrub line will then be reinforced by a line of non-deciduous trees to avoid their destruction due to the excess force from the flowing surface run offs. This will often ensure that water flowing towards these areas via surface runoff will be checked at this point and infiltrate into the ground. According to (Allen Burton & Pitt, 2001), the live reinforcement cannot however solve the entire problem as some water will find their way into the parking area still as meager run offs. This will however not sink to the ground due to the hard reinforcement used in making the parking floor hence the water passes down slope as runoff. The excess rain water flowing down slope from the parking area will be intercepted by a small forest of trees planted in this area. This region will be covered by a forest of thick trees which will act as ground covers for the escaping rain water. If left undone, this flowing water down slope may result in flooding of the area. The trees planted here will ensure that the water escaping down slope does not log the region due to the low slope angle by increasing its infiltration down the soil keeping the ground hard and rid of surface water. Besides eliminating the flooding conditions in these areas, trees and shrubs planted here will as well play the role of promoting the aesthetic value of the surrounding environment by creating a serene comfortable place. Conclusion In conclusion, it is good to note here that proper planning mechanisms should be put in place to ensure that the limited space available for use is

put to its maximum utility so as they generate the most out of it. This should be done in consideration of the surrounding environments by ensuring that these environmental conditions are conserved and promoted for better habitation by man. The aesthetic value of the surrounding environment can however be promoted by using soft covers such as trees and shrubs.

Bibliography Allen Burton, J., & Pitt, R. (2001). Stormwater Effects Handbook: A Toolbox for Watershed Managers, Scientists, and Engineers. New York: CRC/Lewis Publishers. Wolf, K. (2004). Trees, Parking and Green Law: Strategies for Sustainability. Georgia: USDA Forest Service, Southern Region Georgia Forestry Commission.