

Soar Island is a brownfield with existing structures whose sustainability characteristics should be evaluated for their possible disassembly harnessing in order to source sustainable materials such as steel and concrete for the proposed construction. Rainwater harvesting is also a possibility. Planning and design should incorporate green principles in the conceptual stages of a building and the consequent construction materials, construction methods and finishing will have sustainability and energy efficiency specifications so that the contractor can produce a zero-carbon building that satisfies the requirements spelt out by UK regulatory authorities. The full potentialities for massing and orientation of the building with an azimuth that ensures maximum passive heating and cooling will go a long way in meeting the building's energy demand throughout its life cycle with a significant reduction in reliance on orthodox HVAC systems. The possibility of achieving zero carbon during winter without relying on HVAC systems is a cause for concern because solar energy is very scarce during the day and it will be difficult to a significant extent to rely on passive heating and even daylighting to operate a building especially a place of public gathering. It is hereby recommended that steel stanchions should be encased with concrete and steel beams be adequately coated and obscured with suspended ceilings which are made with green materials. On the other hand, if some workers in the building are asked to work from home or visitors to the proposed centre are requested to visit digitally during winter, the fact still remains that energy will be lost in homes and saved in the building and the overall goal of attaining zero-carbon sustains as an ambitious to a greater extent. Structural frames, which have a great potential for reuse and recycling should be bolted at joints instead of being welded so that the structure will be easily disassembled at the expiration of the building's life-cycle for reuse or recycling. Sustainable and energy-efficient buildings should be planned and designed for maximum passive energy gain and reuse and recycling so that the building will exceed its design life. It has been observed that many buildings switch off their HVAC systems during a period of hours during the day to save energy demand costs and probably to achieve zero-carbon emissions without consideration for the health and well-being of the occupants.