Achieving Sustainability in Buildings

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"If something can go wrong, it will definitely go wrong." - The Murphy's Law. To provide needs for the present, without detracting from the ability to fulfill the needs of the future. In simpler terms, it is required to stop waste and save for future.

Most of the buildings are the culprits of carbon emissions. Reducing carbon footprint of buildings is a very pragmatic way to achieve sustainability. Carbon emissions are twofold, one is operational carbon and the second is embodied carbon. Operational carbon emissions are those associated with the energy used to run the building equipments where as embodied carbon emissions are those associated with the building materials and products including the production, construction, replacement, demolition, disposal items and transportation.

It is important to reduce operational carbon emissions, as much as possible. To achieve this it is important to reduce heat gains. For an example, the latest innovation is AAC blocks (Autoclaved Aerated concrete) which has high thermal resistance. Using high performance glasses against just 16 millimeter normal glasses is another example for taking measures to reduce heat gain. By thermal insulation and painting white, the roofs can reduce the heating inside building.

The equipment which are used inside the buildings needs to comply with the standard ASHRAE 90.1.

To reduce the building energy usage, HVAC equipments complying with ASHARE 90.1 can be selected with minimum efficiency requirement. Also by using the building management systems incorporating energy saving strategies will directly support to reduce building energy usage.

The concept of green with regard of building systems is based on with the awareness and respectfulness towards the nature. It is a design that minimize the negative human impacts on the natural surroundings, materials, resources and processes. The performance of green building is measured using the consumption, atmospheric emission, discharge of harmful liquid effluents, impact on site ecosystem and quality of indoor environment.

Green building of Sri Lanka has a building certification system. Certified rated, silver, gold and platinum. The certified buildings has lower carbon footprint.

Carbon footprint is CO_2 emission per year for electricity. By using Emission Factor (EF) and the electricity usage, it can be calculated. EF is CO_2 mass per unit volume of fuel. Carbon calculations are carried out by

associated professionals of GBCSL, LEED or BREAM.

With the knowledge of the carbon foot print of the building, the owners/ users can reduce the foot print by taking suitable measures.