

# Utilization of Sustainable Timber Materials for Innovative Green Building Solutions

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The demand for timber, as a sustainable construction material is projected to increase over the next half century with the massive development of the construction sector. Sustainable timber denotes to timber that has been harvested responsibly from well-managed, continuously replenished forests with no damage to surrounding environment. Industrial roundwood consumption, including timber, will be increased by 28% to 61% from 2010 to 2060. With mounting pressure to decrease the carbon footprint of the built environment, building designers are progressively being called upon to balance functionality and cost objectives with reduced environmental impact. Timber can help to achieve that balance. It is exciting to note that in response to the Paris Agreement (COP21), scientists proposed a range of “negative emissions technologies (NETs) in order to limit climate change to “well below 2C”, three of which relate to timber and its capacity to absorb and store carbon from the atmosphere: afforestation and reforestation, building with biomass and biomass with carbon capture and storage. Timber can be regarded as the best construction material because it has following characteristics: carbon capture and storage, low embodied energy, truly renewable, durable and easily maintained, beautiful aesthetic, highly versatile, quick and simple build, good insulation, can use scrap and salvaged wood, non-toxic, humidity regulator and priceless habitats. In addition, timber has provided several other ecological services beside helping to combat climate change and being wildlife havens. They reduce the risk of flooding, drought, soil erosion and assist to stabilize and regulate weather and micro-climates. The objective of this research is to examine the global tendency of timber as a sustainable green building construction material, its present status, challenges, its impacts on the climate change and future perspectives.

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