

Eco-friendly desert building necessitates materials resisting extreme temperatures, aridity, and intense sunlight. Suitable options include natural materials like adobe bricks, rammed earth, and locally-sourced stone, all offering thermal insulation. Recycled/upcycled materials such as recycled metals, plastics (for insulation panels or roofing), and tires/glass (for earthships) are also viable. Insulating and reflective choices encompass cork, bamboo (for shading), and cool roof coatings. Bio-based and renewable alternatives include palm leaves/grass thatch, hempcrete, and mycelium. High-tech sustainable options consist of solar tiles/panels, cross-laminated timber (CLT), and geopolymers. Crucially, sustainable desert construction emphasizes using local resources, integrating passive design elements (wind catchers, shading), and incorporating water conservation technologies. Material selection must consider the specific desert climate and project requirements while prioritizing sustainability.