

NATIONAL RURAL BUILDING CENTER

The National Rural Building Center located in the Rural Technology Park of the Institute houses 15 structures built using over 45 types of material and construction technology that are cost-effective and eco-friendly. The objective is to propagate affordable houses and buildings in rural areas using local materials rather than conventional concrete and steel. The Centre is electrified solar energy produced in the Rural Technology Park.



WATTLE & DAUB WALLING HOUSE



This traditional Sikkim house, constructed using Wattle and Daub walling in between the Stabilised tamed earth columns, is economical and long-lasting. The rammed earth columns are provided with vertical bands which are in turn monolithically cast with horizontal bands at plinth and roof levels to make the structure stable and earthquake resistant.

STONE MASONRY HOUSE

Stone masonry houses are usually found in the Himalayan region. This structure is constructed with two types of walling – Random Rubble Masonry in ground floor and Cement Concrete blocks in first floor. The roofing is with precast RCC panels over precast joists for the ground floor and Micro concrete tiles for the first floor. Roof water harvesting is provided to supplement the water needs in view of its scarcity in the region.



TRADITIONAL MUD HOUSE



Mud is extensively used for construction in rural areas as it is readily available and is widely accepted. In this house, walls above sill level are made with mud using COB Technique. Fibre glass tiles, interspersed with Mangalore tiles, provide adequate lighting inside the house. Shabad stone flooring used here is economical compared to normal cement concrete flooring

LATERITE HOUSE

Laterite is a brick-like stone with red or brown superficial deposit of clay or earth, which gathers on the surface of rocks. The walls made with laterite stones are strong, yet cost saving if locally available. The micro concrete tiles used for the roof are light in weight, durable and economical. Bethamacharla stone flooring used here is an alternative to the normal artificial stone flooring and provides an elegant look.



RAT TRAP BOND HOUSE



This building, designed on the pattern of Anganwadi Centre, has arch foundation, rat trap bond wall and filler slab roof. Arch foundation saves material and labour up to 15% while Rat trap bond walling technique saves around 25% in the usage and around 40-50% in usage of cement and sand. Filler Slab roofing saves around 20% of the cost when compared to a normal RCC slab. It also provides good thermal insulation and needs no plastering.

BRICK DOME HOUSE

The brick dome house represents the rich architectural heritage of India. The roof of the central portion of the building, shaped like a dome, is made with brick without using steel or concrete. Rat trap bond walls and brick arches at openings economise the cost of construction. Tandoor polished stones, locally available, provide elegant flooring at reasonable cost.



BAMBOO CRETE HOUSE



Treated Bamboo is used for construction of this house. Bamboo mat walling between bamboo columns is plastered with cement on both sides. The structure is light and is economical where bamboo is abundantly available. Bamboo mat corrugated sheet over bamboo trusses and purlins are provided for roofing. Bamboo is also fire-retardant and termite-proof.

FERRO CEMENT CHANNEL & FILLER SLAB DWELLING UNITS

These two structures are made as models for IAY dwelling units. One is made with walls of hollow cement concrete blocks with roofing of Ferro cement channels that are precast at the site itself. In the other house, filler slab is used for roofing while fly ash bricks are used for columns as well as for the half brick walls. Roofing made with Ferro cement channels and filler slabs are cheaper than normal RCC slabs or even Asbestos Cement Corrugated sheets.



STABILISED EARTH BLOCKS HOUSE



In this model, constructed on the pattern of Kutch Bhungas of Gujrat, compressed cement stabilized earth blocks are used for the walls. Earthquake resistant features like vertical and horizontal bands are provided to each Bhunga. Cyclone safety hooks provided herein prevent the blowing off of the tiles during heavy winds.

ADOBE MUD BLOCK HOUSE

In this model, walls are made with Adobe (sundried) mud blocks placed between the flyash brick columns. The blocks can be made with locally available earth without any mechanical compressor. Tile face mud blocks are used for external walls the arch roofing is made with conical tiles and is covered with cement mortar on the external surface. Broken glazed tiles stuck on the external (top) surface, while providing elegance, also prevents water seepage.



RURAL SANITATION PARK



Rural Sanitation park adjacent to the National Rural Building Centre showcases 22 Rural Sanitation Models. These are cost-effective and can be affordable to the rural poor with minimum financial implications. Some of the models depict usage of sanitation waste for manure and production of biogas. The picturesque pond adjacent to the sanitary park is a model for rainwater harvesting. An integrated fishing model is under implementation in this plnd.