PRESS RELEASE

Indian Standards for alternative materials to natural sand and other natural resources

Today Indian Standards are copiously used for ensuring quality of construction of buildings and other structures, which are now-a-days largely dependent on concrete constructions. Bureau of Indian Standards, the National Standards Body of the country, considering the scarcity of sand and coarse aggregates from natural sources, has evolved number of alternatives which are ultimately aimed at conservation of natural resources apart from promoting use of various waste materials without compromising in quality. These measures include permitting in the Concrete Code (IS 456) as also in the National Building Code of India, the use of slag - a waste from steel industry, fly ash - a waste from thermal power plants, crushed over-burnt bricks and tiles - waste from clay brick and tile industry, in plain cement concrete as an alternative to sand/natural aggregate, subject to fulfilling the requirements of the Code. This Code, further, encourages use of fly ash and ground granulated blast furnace slag as part replacement of ordinary Portland cement in plain as well as reinforced cement concrete. This part replacement could be of the order of 35% and 70% for fly ash and slag respectively thereby affording a large scale saving of natural limestone reserves which would have otherwise depleted in case of the use of ordinary Portland cement without such replacement. Not only this, the Code highlights how durability of concrete can be improved with the use of these supplementary cementitious materials. The Indian Standard on concrete mix design (IS 10262) has been upgraded to include guidance and examples of designing concrete mixes using fly ash and slag. Provisions for compliance for requisite quality of concrete made using fly ash and slag have been duly covered for the manufacturers of ready-mixed concrete in the Indian Standard Code of practice for RMC (IS 4926).

BIS has also formulated an Indian Standard Specification for artificial lightweight aggregates covering manufactured aggregates, such as foamed blast furnace slag, bloated clay aggregate, sintered fly ash aggregate and cinder aggregate (IS 9142). A series of Indian Standards has also been formulated on various precast concrete products such as solid and hollow concrete blocks, light weight concrete blocks, autoclaved aerated concrete blocks, preformed foam concrete blocks, partial prefabricated concrete flooring and roofing units, concrete pipes, etc, all permitting use of fly ash and slag. Not only this, the Indian Standards on cement permit use of these alternative materials such as fly ash, slag, calcined clay, rice husk ash, etc which help not only conserving our precious natural limestone reserves but also improve the durability of products and structures made using these. Out of the 15 varieties of cements, for which Indian Standards have been developed, more than three-fourth of the cement produced in the country pertains to Portland pozzolana cement and Portland slag cement (popularly known in the market as blended cements). The Indian Standard Specification for masonry cement, intended for use in masonry constructions, permits use of various waste materials such as flyash, calcined clay pozzolana, granulated slag, carbonated sludge, mine tailings, etc. Even, as per the Indian Standards, in the ordinary Portland cement, it is permitted to use up to 5% of these alternative materials, designated as performance improvers.