

Review of literature related to composite materials

Literature



**ASSIGN
BUSTER**

Purpose of the study

- To analyze different stuffs being used in Indian building industry.
- To analyse these stuffs for their utility in the Indian climate.
- To place different stuffs which are available in market and can be used in Indian buildings.
- Compare the advantages of composite stuffs over normally used stuffs.
- To place the usage and handiness of composite stuffs in India.
- To look into the handiness and usage of composite stuffs outside India and to look into its relevancy in the Indian context.

To get down with, the really first thing which needs by us to understand is what stuffs are soon being used in India, how are they used and how are they obtained. Are these stuffs locally available, or imported or unnaturally manufactured in here merely. If so, how are the stuffs used for its fabrication obtained.

To get down with this lets us hold a speedy expression at the stuffs being used soon in India.

1. Burnt clay bricks and tiles

(GUPTA, 1998) Brick is one of the most normally used stuff in the Indian building industry. It is used in every topographic point in India. It had been use by us from around ancient period. But the usage it have decreased today as compared to that clip. The bricks are manufactured in India utilizing the clay nowadays on the top dirt and fire kilns. It is been invariably manufactured by many little graduated table industries in their ain ways.

These ways were largely inefficient and resulted in hapless quality of bricks and higher cost of building.

The revolution in it came with the debut of different stuffs along with the clay used for the brick building. The most celebrated of it is the fly ash bricks or aac bricks. To call few of its advantages:

- Saves energy in the kilns as the fly ash already contains hints of unburnt coal which helps it in drying or baking the brick more expeditiously. Besides since the brick is burnt besides from the interior, it takes less clip to bake.
- It is lighter in weight as compared to the older bricks hence it can be casted in bigger blocks now and can now be used for faster buildings.
- Its strength is more than the traditional ruddy brick and it more unvarying in form due to the mechanism used for its production.
- It can be used in about every sort of building due to its light weight and high strength.

1. Rock

(GUPTA, 1998) Rock was one of the most normally used stuff in the station Mauryan epoch and had been used till now. But its usage and ways of execution had changed. It is present in India in big sum and in assortment of forms and colourss and textures etc. Rocks are used conspicuously in the foundations, facings, paving, floorings, and fencing. The types of rock nowadays in India are Black granite, other granites, limestone, marble, sandstone, and slate and Delhi quartzite to call few. Besides stones like Kota rock and Jodhpur rock are used extensively in the insides and flooring. The

rock is obtained by the procedure of quarrying. Quarrying is still done by the traditional mode merely but by utilizing the modern age tools. The rock is largely obtained from an unfastened cavity, and could besides be obtained by utilizing explosives. There are three ways of obtaining rock, i. e. stopper and plume method, explosives, and channeling.

In stopper and feather method of quarrying, drills are holed in the rock. The plumes are formed to make full the holes on one side and level on the other. Now these stoppers or plumes are easy driven to lodge away the rock.

Explosives are used to blare off a portion of rock to take the ball of bigger stone from the other. But this method gives us really irregular signifier of rock. These rocks ate used in the concrete as the sum.

Channeling is done by boring holes 6 thousand deep I the rock and so a engine is used to drive the chisel to achieve coveted deepness.

The used of rock and its lastingness are well-established facts and are known for them.

1. Building calcium hydroxide

Lime has been used since 4000 BC. Lime is used in the building of edifices and roads, in lime howitzer, lime concrete, plasters, stabilized bricks, autoclaved Ca silicate bricks, fly ash sand calcium hydroxide bricks, and cellular concrete. It is produced utilizing the procedure of calcination of limestone of natural calcium hydroxide.

1. Gypsum

Gypsum is an of import edifice stuff. It is used to fabricate Plaster of Paris, gypsum plaster, hempen gypsum board, gypsum blocks, acoustic tiles, etc. The usage of gypsum in India is limited to commercial and institutional edifices merely. It is non used so much in India soon than it can be used.

1. Glass

(GUPTA, 1998) Glass fabrication in India is immense with both organized and unorganised sectors. The glass industry in India is extremely developed and reasonably cost effectual. The usage of glass in India is besides really high and is used largely in every edifice and with the addition in the commercial edifices like promenades and office edifices, the demand of glass increased manifolds. Glass is manufactured utilizing the silicon oxide. There are many types of glass like fused silicon oxide glass, alkali silicate glass, sodium carbonate calcium hydroxide glass, lead glass, boro silicate glass, particular glass, glass fibres, optical glass, mirrors etc.

Glass is besides used in edifice industry in many ways. Transparent and semitransparent glass sheets, clear or tinted, are used as Windowss and fanlights. It is besides used as an infill in the doors and the Windowss. India manufactured every type of glass viz. float, clear float, coated and low emanation, rolled wired and iridescent, laminated, heat treated, tempered, heat strengthened, and pdril.

Glass are used in many ways like glass tiles. These are made for the intent of glazing, wall coating, dividers, ceilings etc. They are besides used in the drape walls andswimmingpools. They are used intensively in the landscape gardening besides.

Mirrors are besides one of the major usage of glass in the edifice industry. They are the standard adjustment of the bathrooms, sleeping rooms, and now they are even used as an component of ornament.

Glass fibres are thin and long fibres of glass which are used to fabricate different other types of stuffs. They are used to fabricate assorted complexes in which gypsum plaster, polyester or epoxy rosin or cement is used as a binder. Glass fibres reinforced complexes are besides available in the market and are used to fabricate pipes, armored combat vehicles, panels etc.

There are new merchandises besides available in the market by the name of glass ceramics. They are used as panelling, ceilings, thermic insularity and fire immune stuffs. Blast furnace scorias are besides used to fabricate the glass ceramics.

1. Ceramicss

Ceramicss are used to fabricate healthful wares, glazed tiles, stoneware, tableware, furnace linings, bricks for roofing and enamel wares etc.

1. Steel

(GUPTA, 1998) Steel is a really widely used stuff in today's universe. And it is used widely in edifice buildings besides. The structural steel is used for edifice buildings and have an progressively of import function in traditional, medium denseness lodging. The usage of hot rolled structural steel merchandises peculiarly, has shown advantages through its built-in strength. The advantages of utilizing steel is the handiness of long column free ps and saves constructing stuffs due to low deepness of steel beams. Nowadays,

new lightweight steel beams are besides available and are the grounds for the new assorted inventions.

Uses of steel in edifices:

- Steel framed skeletal constructions for high rise edifices.
- Large p level roofs utilizing steel beams.
- Steel concrete complex framed constructions for higher stableness.
- Steel trusses.
- Steel hemorrhoids.
- RCC.
- Prestressed steel wires.
- Steel wires for cement concrete.
- Doors, Windowss, armored combat vehicles, etc.
- Staircase, lifts, pipes, poles and stations, Gatess, fences, mesh etc.

Steel is a really dependable building stuff and is besides used extensively.

1. Cement and concrete

(GUPTA, 1998) Cement is one of the most widely used edifice stuff and decidedly one of the most of import 1 besides. There are many assortment of cement nowadays in today's universe, but the most normally used cement is the Portland cement. Cement industry is a nucleus sector industry and forms the anchor of the substructure development of the state.

(Anon. , n. d.) Concrete is the most extensively used stuff in the whole universe. Today. Every edifice used concrete for building. It surpasses steel ingestion of the universe. It is made by utilizing the cement along with other things like sand, sum, etc.

There are many recent promotions in the concrete industries which have made really attractive options to utilize concrete as the primary building stuff. But we will discourse it subsequently in item.

1. Complexs or composite stuffs

(Anon. , n. d.) Composite stuffs are the stuffs which are made by uniting two different type of stuffs to organize a new compound of the two or more stuffs to accomplish the coveted belongings. (RILEM, n. d.) Complexs are used efficaciously in each sector of building industries. (Papanicolaou, n. d.) There are many types of composite stuffs present in the universe like manmade and natural fibres based complexs, wood complexs and complexs form the local stuffs. The complexs from local stuffs can besides be classified as the combination stuffs in which no chemical combination occurs, but assorted stuffs are combined together in specific sets to accomplish desired consequences. The other types of complexs available are bamboo and wood complexs, polymer, plastics and surface coatings, metal matrix complexs etc. to call a few.

Now the overview of the stuffs used in India or present in India is done. We now need to seek for the stuffs which are non present in India but can work really good for the Indian context.

Bibliography

1. Anon. , n. d. [www. archdaily. com](http://www.archdaily.com) . [Online] Available at: hypertext transfer protocol: [//www. archdaily. com/category/building-technology-and-materials/](http://www.archdaily.com/category/building-technology-and-materials/) [Accessed 15 July 2014] .

2. Anon. , n. d. www. architonic. com . [Online] Available at: hypertext transfer protocol: //www. architonic. com/ntsht/concrete-in-architecture-2-not-really-grey/7000529 [Accessed 15 July 2014] .
3. GUPTA, T. , 1998. Constructing stuffs in India 50 old ages by GUPTA, TN. In: T. Gupta, erectile dysfunction. *Constructing stuffs in India 50 old ages*. Delhi: Building Material and Technology Promotion Council, p. 536.
4. Papanicolaou, S. P. a. G. ed. , n. d. Engineering Applications of New Composites by S. A. Paipetis and G. C. Papanicolaou. In: s. l. : s. n.
5. RILEM, n. d. *Uniting Materials: Design, Production and Properties by RILEM*. s. l. : RILEM.