ANDHRA PRADESH

NTPC to promote nano concrete as substitute for natural stone

utilisation of fly ash, the disposal of which has been vexatious.
The project uses nano concrete aggregate (stone) with a high content of 76% fly ash as an alternative to 50 MPa strength natural stone aggregate.

Nano concrete, that has been patented by Bhanumatidas and N. Kalidas of Institute for Solid Waste Management and Ecological Balance (INSWAREB), won first prize at the Grand Challenge National Competition of innovative scientific ideas conducted by NTPC in December, 2018.

“There is an acute scarcity of natural stone in the Gangetic plains due to a lack of hillocks. As against ₹800 a tonne, here it costs about ₹3,000,” Mr. Kalidas said.

“This scarcity in the North India can be overcome by utilising nano concrete and 70% of fly ash as supplement to cement in concrete mix that has a compressive strength of 30 to 40 MPa,” Mr. Kalidas pointed out.

To translate the idea into reality, a two-storied demonstration building is being taken up and ‘bhoomipuja’ was performed at NTPC-Simhadri by Chief General Manager V. Sudharshen Babu. Mr. Kalidas said 63 tonnes of nano concrete stone was cast at the Building Centre of INSWAREB at Parawada, crushed to 20 mm and 10 mm aggregate and delivered to NTPC-Simhadri. It will replace the natural stone in toto right from foundation footing, columns to RCC slab of the building.

The G+1 building measuring 700 sft is scheduled for completion in three months.

‘Innovative project’

“It is an innovative project where 75% fly ash can be used instead of cement, thus saving on the ever depleting natural resources. Wherever stone aggregate is not available, it can be directly replaced,” said assistant general manager (Ash Utilisatin Division) of NTPC-Simhadri S.S. Rao.

Lab test

“In the laboratory tests, the results are good. In its properties and compressive strength, it is as good as natural stone. Now, we want to extrapolate it at the ground-level and see how it behaves with the ultimate objective of promoting it in North India where natural stone...