

Two important accessories in construction

Both scaffolding and formwork are very important accessories in the construction of both small and big projects and also buildings

The following are a few helpful tips which all in the construction industry need to take note. This is necessary for smooth working of the job and safety of workers, machinery and equipment from start to completion of the construction job.

I have worked on many big projects in a number of states such as Assam, West Bengal, Bihar, Uttar Pradesh, Maharashtra, Gujarat, Punjab and so on, (and also overseas). I have noted that most works suffered mainly due to formwork. That is why this item needs to be planned very well.

Form-oil

I strongly feels that the use of waste oil prepared from burnt diesel and sewage waste must be banned. It does more harm than good to RCC structures. Reinforcement rods get coated with this oil while applying it to the formwork, which reduces bonding capacity.

This waste oil spills over construction joints, and thus there is no proper bond of concrete placed over it and a weak joint is susceptible to leakages. Only the good quality mould release agent manufactured by good construction chemical companies must be used.

If the contractor feels that his rate does not permit him to use good mould release agent, it is better not to use any oil, rather than use waste-oil and harm durability of the structure.

I feel that this must be religiously followed as suggested, to achieve durability. Form-oil covers a fraction

of the total expense and needs proper education, change of attitude and insistence from the owner to use only good quality mould release agent.

Construction chemical companies inform the following advantages when good quality 'mould release agent' supplied by them is used.

Mould release agent

The agent provides fair-faced, stain-free concrete, together with easy stripping of the mould. It is resistant to heat, up to 100 degrees centigrade.

Plaster can be applied later on the surface as it does not give bonding problem.

Mould release agent does not get washed out during curing, making stripping of formwork easy.

It prevents wooden formwork from absorbing moisture and swelling and protects steel formwork against corrosion.

It is chloride-free, hence, does not affect reinforced concrete.

Coil rod (nut with threaded bolt tie)

We must use only coil rod – nut with threaded bolt tie. This is as per international standard. In this system there is no through and through hole formed in the RCC member and the tie rod reinforcement which gets embedded is 50 mm inside the face of the concrete. (Refer to sketch 1 and photo 1.)

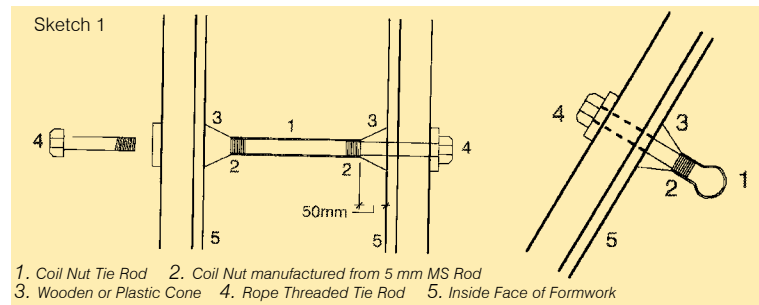


Photo 3

Photos Samir Shirali

I worked as durability consultant on a building named Gitanjali built during 2001 to 2003 at of Napean Sea Road in Mumbai where these types of tie rods are used. I feel that possibly this is the first and the last building where these type of tie rods were used in India.

Design of formwork

It is important to make a correct assessment of forces due to weight of fresh concrete, wind, workmen and equipment, lateral pressure of green concrete and so on.

The weight of fresh concrete and lateral pressure exerted depend, among other things, on density of concrete, its slump, rate of pour,

method of discharge, height of discharge, concrete temperature, dimensions of sections to be cast, reinforcement details, concrete vibration technique adopted and so on.

Scaffolding

Single bamboo scaffolding is very commonly used in the building



Photo 1



Photo 2

industry. This is supported on the masonry wall by providing pockets. (Refer to photos 2 and 3.)

Later, on the removal of the scaffold these pockets are not properly sealed, and remain a permanent source of leakage. There are innumerable examples, where no efforts are made, even to remove the portion of the horizontal member of the scaffold from the pocket of the masonry wall and the horizontal member is cut at the face of the wall, with the result, a portion of the bamboo/'balli' remains inside the masonry wall and becomes a source of severe leakage in the building.

There was severe leakage in the toilet block of managing director of a very reputed company and this was not resolved for many years. When I became involved it was decided to strip open the entire toilet, and to the surprise of everyone, bamboo pieces were left inside the masonry walls, which was the source of leakage not identified for years.

Hence this practice of single bamboo/'balli' scaffold needs to be totally discouraged. Let us provide double bamboo or 'H' frame scaffold only, supported to inserts (photos show readily available M S bolt with anchor fastener used as insert and fixing of scaffold member to them) fixed to 16 mm anchor fasteners placed in RCC members by drilling a suitable hole and then hammering into it, when it splits and grips into it tightly.

(Please take note: Single bamboo scaffolding must be banned from safety point of view.)



Jayakumar Jivraj Shah
An expert on waterproofing, repairs, durability of RCC buildings, fixing leakage

Greywater to treat and recycle 75,000 litres wastewater per day at Club Mahindra

Greywater, a Mumbai-based specialized technology company that pioneers the next generation products for sewage and wastewater treatment, announced the commissioning of 75 KLD packaged GREWA-RS STP at Club Mahindra's Holiday resort at Mahabaleshwar.

"We are extremely proud to announce that we have commissioned our latest revolutionary STP, GREWA-RS at Club Mahindra's Resort in Mahabaleshwar. The STP will treat and recycle 75,000 litres of sewage water per day during peak loads at the resort.

"Our STP products are critically designed, keeping in mind the challenges faced by our clients from the hospitality industry. Mahindra Holiday & Resorts is one of our earliest customers and a repeat order from them is a direct testimonial for our superior technology and satisfactory services," said Arun Dubey, Head, Strategy & Business Development, Greywater.

"Greywater has already installed a STP plant at our GIR facility and we are very satisfied with the plant and post-order support and services provided by the Greywater team. Thus Greywater R was our preferred choice for STP in Mahabaleshwar.

"The GREWA-RS STP installed at our resort will recycle up to 75,000 litres of wastewater in peak season" said Basheer Ahmed, Corporate Chief Engineer, Mahindra Holidays & Resorts Pvt Ltd.

The resort is located in a highly environment regulated zone of Mahabaleshwar, the treated water is being used for landscaping and common area cleaning. Mahabaleshwar sees seasonal variation in a number of tourists visiting the area, thus there is predictable variation in occupancy of the resort. The GREWA-RS STP comes with a unique feature to sense the reduction in load and accordingly take actions to operate at lower loads.

Greywater is amongst the only



company in India to provide truly packaged and next generation STP products. In the past three years the company has enabled several prestigious clients such as Leighton Welspun, Mahalaxmi Developers, Dell, Unitech, Wadhwa Builders and others to make their projects water sustainable.

Greywater is a specialized technology company that pioneers the next generation products for

sewage, wastewater and effluent treatment. Funded by Nexus Venture Partners, Greywater's compact plug-n-play products are being used in hospitality, commercial, hospitals, Sezs, IT parks, residential and industrial sectors.

The products significantly reduce space footprint by 30 per cent to 70 per cent and energy requirements by 40 per cent to 50 per cent compared to conventional plants. These plants

are designed and built to handle variable loads and require minimal manual intervention.

Greywater's clients include corporates such as Dahej Sez, Mahindra Holidays, Oberoi Realty, Gemco Power, Unitech, Leighton Welspun. The Greywater team comprises experienced professionals, with over 108 years of combined industry experience.