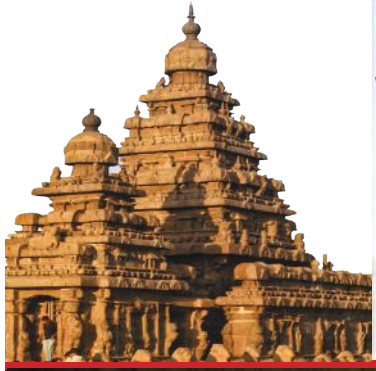

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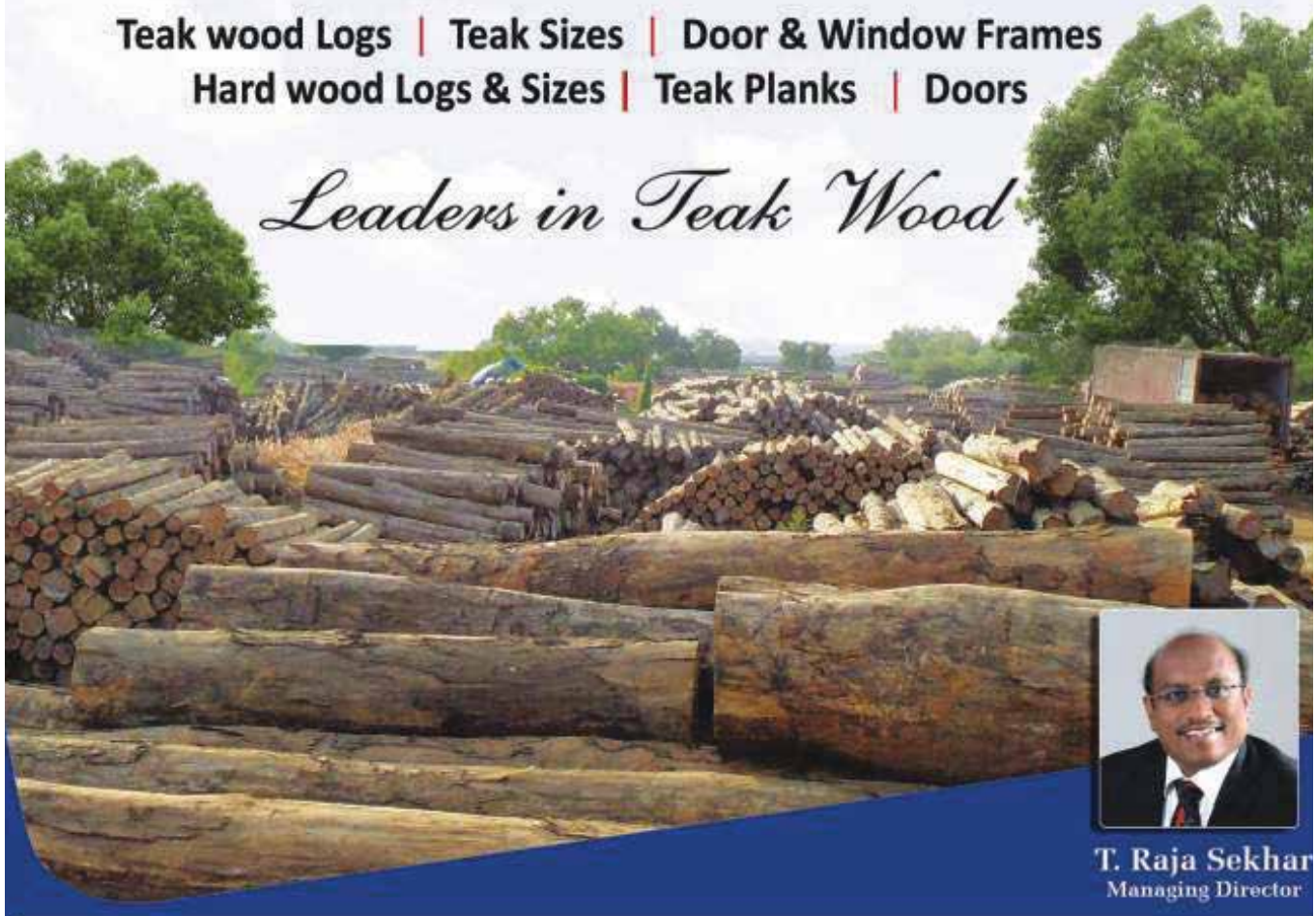

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Contents

ஆசிரியர் மடல்

வணக்கம்

ஒருவர் வெகு நாட்களாக கொடிய நோயால் பாதிக்கப்பட்டு அவதியுற்று வந்தார். ஒரு நாள் அவரைப் பார்க்க சமயகுரு ஒருவர் அவர் வீட்டிற்கு வந்தார். வாடிய உடலோடு மனமும் சோர்வுற்ற நிலையில் இருந்தார் அந்த நோயாளி.

இதைப்பார்த்த சமயகுரு " நாம் அனைவரும் சேர்ந்து இவருக்காக இறைவனிடம் வேண்டிக் கொள்வோம்" எனக் கூறி அங்கிருந்த அனைவரும் பிராத்தனை செய்ய ஏற்பாடுகளை செய்தார். அனைவரையும் தங்கள் மனதை ஒரு நிலைப்படுத்தி நோயுற்றிருக்கும் நண்பர் நோயிலிருந்து குணமடைய மனமுருகி அமைதியாக இறைவனை வேண்டி பிராத்தனை செய்ய கேட்டுக் கொண்டார்.

அந்த அறையில் அமைதி நிலவியது. அனைவரும் மனமுருகி பிராத்தனை செய்ய தொடங்கினர். சமய குரு மனமுருகி இறைவனை வேண்டி நீண்ட பிராத்தனை செய்து வணங்கினார். பிராத்தனையின் முடிவில் சமய குரு அந்த நோய்வாய்ப்பட்டிருந்த நண்பரை நோக்கி " இறைவனின் அருளால் நிச்சயமம் உங்களுக்கு நோய் குணமாகிவிடும். இத்தனை பேரும் உங்கள் நோய் குணமாக வேண்டி இருக்கிறார்கள்.. நீங்கள் பூரண நலமடைவீர்கள்" என்று ஆசிர்வதித்தார்.

அந்தக் கூட்டத்தில் இருந்த ஒரு நாத்திகன் சமய குரு சொன்னதைக் கேட்டதும் நக்கலாக சத்தம் போட்டு சிரித்தான். வெறும் வார்த்தைகள் போய் அவனை குணப்படுத்துமா ? அல்லது வெறும் சொற்கள் மாற்றத்தை ஏற்படுத்துமா எனக்கூறி கிண்டல் செய்தான்.

அதற்கு அந்த சமயகுரு " இந்த கூட்டத்திலேயே மிகப் பெரிய முட்டாள், மூடன், மூர்க்கன் நீதான்" என்றார். அதைக்கேட்டதும் அவன் " நீங்கள் எப்படி என்னை இப்படி கூறலாம். நீங்கள் கூறியதற்கு உடனே மன்னிப்பு கேளுங்கள் இல்லையென்றால் உங்களை அடித்து விடுவேன் என்றபடி சமய குருவை அடிக்கப் பாய்ந்தான். சமய குரு பதற்றமே இல்லாமல் சிரித்தபடி "முட்டாள், மூடன், மூர்க்கன் என்பது வெறும் சொற்கள்தானே. அவை உங்களை இப்படி மாற்றி விட்டதே எப்படி ? இந்த சொற்கள் உங்களை எப்படித் தூண்ட முடிகிறதோ அதே போல்தான் நல்ல சொற்களால், நல்ல எண்ணங்களால் பல மாற்றங்களை ஏற்படுத்த முடியும் என்றார். இதைக் கேட்ட அந்த நாத்திகன் வெட்கித் தலை குனிந்தான்.

நம் எண்ணங்களுக்கும் வார்த்தைகளுக்கும் சக்தி உள்ளது என்பதை நமது முன்னோர்கள் நமக்கு அறிவுறுத்தியுள்ளனர். "நீங்கள் எதை நினைக்கிறீர்களோ அதுவாகவே ஆகிறீர்கள்" என்று வேதங்கள் நமக்கு உரைத்துள்ளது.

நாம் இன்று என்ன நிலையில் இருக்கின்றோமோ அந்த நிலையை கொடுத்தது நம் எண்ணங்களே நம் எண்ணங்கள் உயர்வாக இருந்தால் நாமும் உயர்வோம்.

" தீதும் நன்றும் பிறர் தர வாரா " நல்லதையே நினைப்போம். பிறர்க்கு நல்லதையே செய்வோம்.

நாநலன் என்னும் நலன்உடைமை அந்நலம்
யாநலத்த உள்ளதூஉம் அன்று
– திருக்குறள்

அன்புடன்
மு. மோகன்

மய்யத் தலைவர் மடல்

மரியாதைக்குரிய உறுப்பினர்களுக்கு வணக்கம்

கட்டுநர் சங்க தென்னக மய்யத்தின் 50வது தலைவராக பொறுப்பேற்றுக் கொள்வதில் நான் மகிழ்ச்சி அடைகிறேன். 1950ம் ஆண்டு மரியாதைக்குரிய தாராப்பூர் அவர்களால் துவக்கப்பட்ட தென்னக மய்யம் இந்த 68 ஆண்டுகளில் மிகப் பெரிய விருட்சமாக வளர்ந்துள்ளது. இவ்வளர்ச்சிக்கு காரணமான தென்னக மய்யத்தில் இதற்குமுன் பணியாற்றிய 49 தலைவர்களுக்கும் இத்தருணத்தில் எனது நன்றியைத் தெரிவித்துக் கொள்கிறேன்.

எனக்கு முன் தலைவராக பணியாற்றிய சகோதரர் திரு. K. வெங்கடேசன் அவர்கள் கடந்த இரண்டு ஆண்டுகளாக சிறப்பாக செயல்பட்டு மய்யத்திற்கு பெருமை சேர்த்தார். இத்தருணத்தில் அவருக்கு பாராட்டுதல்களையும் நன்றியையும் தெரிவித்துக் கொள்கிறேன்.

தென்னக மய்யம் கட்டுநர் சங்க சேவையில் சிறப்பாக செயல்பட்டு மற்ற மய்யங்களுக்கு முன்னோடி மய்யமாக விளங்கி வருகிறது. மேலும் மய்ய சேவைகளை செம்மையாக்க புதிய செயல்திட்டங்களை செயல்படுத்த விழைகிறேன். மய்ய முன்னோடிகள் மற்றும் உறுப்பினர்களின் ஒத்துழைப்புடன் மய்யத்தின் நலனுக்காக, தனிப்பட்ட விருப்பு வெறுப்பு இல்லாமல், அயராது பாடுபடுவேன் என்று உறுதி கூறுகிறேன்.

மய்ய உறுப்பினர்கள் அனைவரும் மய்யத்தின் கண்ணியத்தையும், பெருமையையும் காக்க ஒன்றுபட்டு துணை நிற்க வேண்டுகிறேன்.

L. வெங்கடேசன்
மய்யத்தலைவர்

Performance and Maintenance of Concrete Structures

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The whole-life performance of a concrete structure will be satisfactory only if all the processes of concreting—planning, analysis, design, and execution, involving fabrication and construction, regular inspection and maintenance, and repair when necessary, including the aspects of final demolition and disposal of debris and salvage or waste disposal—are earnestly considered. If any of these aspects is ignored the structural integrity of the concrete mass will be weakened; this may lead to a premature failure of the structure or may render it unsafe even before completing its service life. The service life of a structure can be broadly defined as 'the time period for which a structure in a specific environment under the accepted code prescribed load conditions will retain its desirable properties of service and provide security against collapse in addition to exhibiting an acceptable aesthetic appearance'.

This chapter deals with the various aspects of the maintenance of concrete structures. It is a common belief that concrete once made will last for ever. However, time and again we have seen that concrete structures deteriorate even immediately after their construction. This may happen due to the several factors we have discussed in earlier chapters. So, at the time of design, due consideration must be given to ensure that the structure is serviceable and strong.

The concern for maintainability of concrete structures stems from the need to achieve durability through measures taken for preventing or slowing down the process of deterioration of concrete. The factors that are responsible for deterioration of concrete are the following:

- Presence of water or moisture in and around concrete
- Severity of the environment surrounding concrete
- Ineffective compactness (minimization of pores) of concrete
- Inadequate thickness of concrete cover
- Defective grouting compactness in case of prestressing
- Width of crack(s), if any, in concrete

During the service life of the structure, protection against overloading due to actions that were not anticipated in the design should be ensured. A regular follow-up of the condition by inspection and upgradation by repair, restoration, and/or rehabilitation is essential. Serviceability of the structure has to be ensured at all times. Hence it is necessary to examine the performance profile of the structure at regular intervals. If proper maintenance and servicing of the structure is ensured, it may reach the limit state of collapse only rarely because of extraordinary events such as earthquakes, etc.

A concrete structure may consist of structural components of varying strengths. For instance, the expansion joint is regarded as a weak item, whereas the beam is considered to be a strong item. While the strong items need less maintenance, the weak items should be monitored periodically and even changed if necessary. From the point view of introducing a maintenance strategy, it is necessary to have a deterioration model for various components of a concrete structure.

1 Factors Affecting Whole-life Performance

In this section we will discuss some major factors that affect the performance of concrete structures during their service life.

1.1 Water or Moisture

Water ingress or moisture ingress is one of the major causes of deterioration of concrete structures. The detailing of a structure at the time of design should consider such shapes which will easily facilitate drainage. Rainwater should not accumulate and stagnate in and around the structure; it should drain away quickly. Figure 1 shows some good shapes to facilitate easy and quick drainage of rainwater.

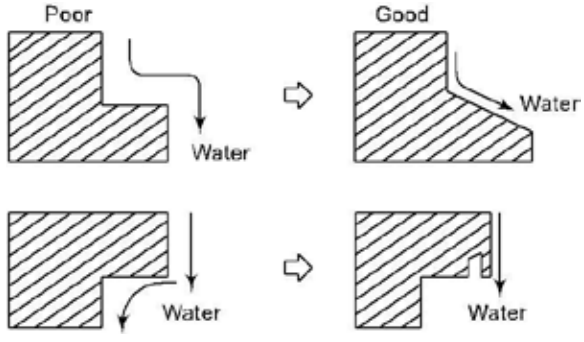


Fig. 1 Design detail to drain water

All structural components made of concrete should be designed in a way as to protect them from splash water. To avoid splash water, a drain/tube has to be provided (as shown in Fig. 2) so that water does not accumulate near the kerb. Drain pipes should never be embedded in concrete; these should be exposed to inspection as shown in Fig. 3. The leakage of water from damaged drains into the concrete mass is a serious problem and may cause early corrosion in the deck slab. The detail shown in Fig. 4 will help avoid premature service life problems.

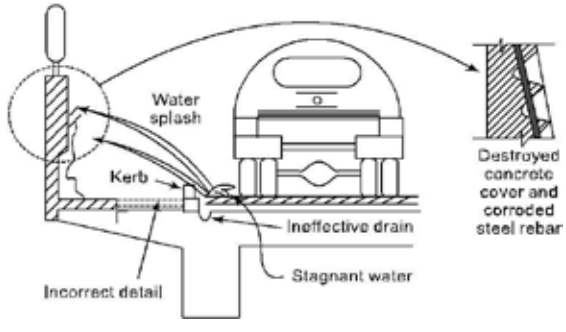


Fig. 2 Splashing due to stagnation of water and vehicle movement.

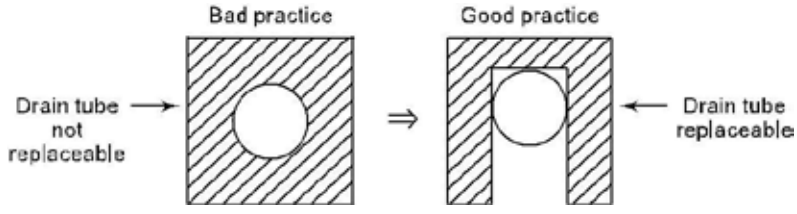


Fig. 3 Draining water

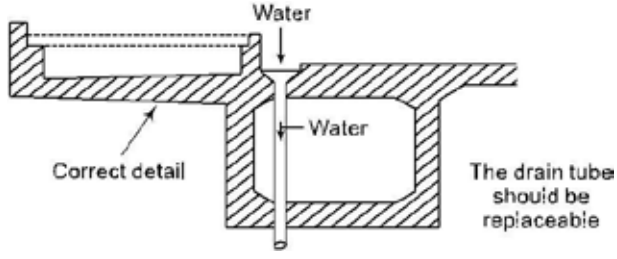


Fig. 4 Drainage system

Asphalt pavements on concrete bridges should not be assumed to be watertight. Water may penetrate the deck (Fig. 5). It is important to make the waterproofing between the deck and the pavement foolproof.

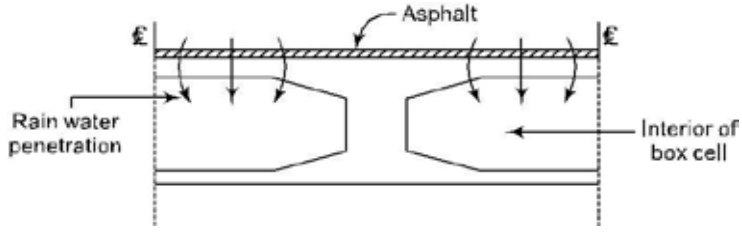


Fig. 5 Water penetration through asphalt into interior of a box girder

1.2 Severity of Environment

The deterioration and service life of a structure very much depend on the severity of the environment surrounding it. The most predominant agent that causes deterioration of concrete structures in coastal areas is the sea water. Chloride ions present in sea water decrease the alkalinity of concrete, which leads to depassivation and corrosion of steel embedded in concrete. In industrial structures concrete gets contaminated with inorganic acids such as hydrochloric acid, sulphuric acid, or nitric acid.

Production of urea for fertilizers needs massive concrete structures. In these circumstances concrete is subjected to environments containing ammonia or magnesium salts. In certain cases groundwater containing magnesium and other chemical compounds causes a washout of weak alkalis, which leads to significant deterioration.

The sulphate used as fertilizer for agricultural land reacts with concrete foundation, forming compounds that expand, and this expansion, in turn, initiates cracking and disintegration. Alkalis, carbonates, and silicates in contact with the surface of the concrete structure lead to expansion and cracking.

The aspect of the maintenance of public infrastructure should be duly considered even during the planning stage. In box girder bridges impurities such as bird droppings, eggs, and dirt have led to severe deterioration, thus warranting replacement of the bottom slab (Fig. 6). The prestressing wires in bridges may be subjected to corrosion due to the presence of chlorides present in the grout through the ice used to chill the grout during hot weather execution. Corroded steel is a common sight in power plants (Fig. 7). Corrosion of steel in this case is due to the action of stray electric current accelerating the deterioration process.

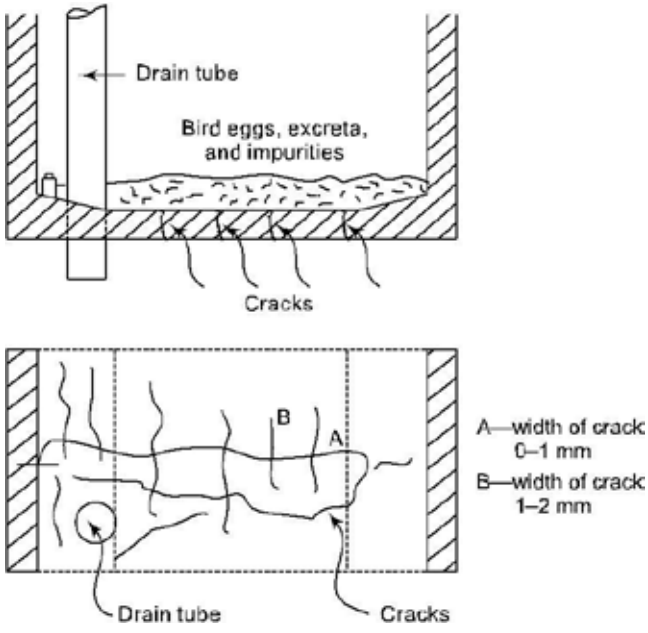


Fig. 6 Presence of impurities and cracking of lower chord of a box girder

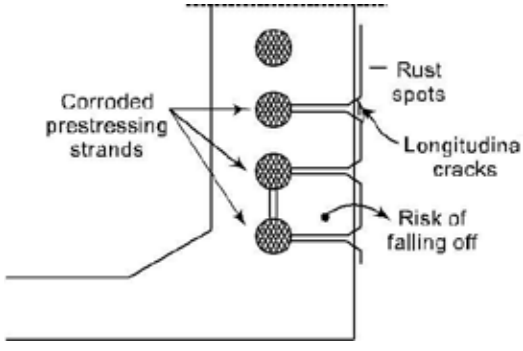
Fig. 7 Corrosion due to stray currents

During the design and construction stages it is necessary to take into account the severity of the environment. For example, in a sea front structure there is no justification for designing a cantilever sunshade as a cracked section which encourages ingress of salt-laden atmosphere. Instead the outer surface should be designed as non-cracking section avoiding reentrant corners on the outer surface.

During the service life of the structure, suitable measures should be adopted to help decrease the severity of environment, which in turn will help in slowing down the deterioration process. Similarly, maintenance measures taken to clean and remove aggressive chemicals deposited on the structure will increase its service life and durability. The micro-climate surrounding the structure is of concern to both the designer and the maintenance engineer. It is in the hands of the designer and maintenance engineer to change the micro-climate to make it favourable one.

1.3 Concrete Cover

The state of concrete cover determines the service life of a structure. Concrete cover which is porous, thin, poorly made, or made with porous cover blocks can cause corrosion of steel. It is necessary to have the best possible compactness and necessary thickness for the concrete cover. Grouting for prestressing tendon should be made with good grout of sufficient thickness (Fig. 8). During maintenance, it is important to check and control concrete cover quality, grout, and seal cracks and porosity when noticed.



The appearance of rust stains, lime leaching spots, blistering, discolouration, separation, and falling off of cover require not only repair but also establishing the cause(s) of such deterioration so that necessary steps can be taken to remove the same.

Carbonation of cover concrete causes its deterioration. Penetration of CO2 causes depassivation of concrete and renders steel susceptible to corrosion. During maintenance the progress of carbonation can be established using the phenolphthalein test or by establishing the pH value of the cover concrete to know the extent of carbonation and hence depassivation.

1.4 Cracks

Cracks can occur during either construction or operation of the structure. Cracks aid deterioration. Though concrete is designed to crack, the crack width must be limited. Penetration of aggressive chemicals occurs through cracked areas. Hence in environments of aggressive chemical activity concrete should

be designed as uncracked. For example, it is prudent to design the top roof of a cantilever as an non-cracking section. This will enhance the service life and durability of the structure.

At the design stage, it is important not only to assess the capacity of the section but also to check and limit crack widths as per the environment. During construction temperature and shrinkage cracks should be controlled by proper planning of the sequence of concreting. During maintenance it is necessary to monitor the crack widths and seal them with appropriate polymeric repair material if the width exceeds the safe limits. Thus control of crack width is an effort that starts from the planning stage and continues through the design, construction, operation, and maintenance stages of the structure.

1.5 Curing

After placement and compaction of concrete, adequate measures need to be taken to obtain expected properties from the hardened concrete. The main properties of concrete, which are desirable from the long-term behavior point of view, are its strength, impermeability, and durability. Curing is a process that helps avoid premature drying of concrete and makes available adequate water, after placement, for a sufficiently long period of time for concrete to gain adequate degree of hydration within its mass and particularly in the surface cover layer. Curing protects concrete against drying due to sunshine and wind and effects due to early age shrinkage.

Careful and adequate curing ensures high quality concrete, which is durable and lasts longer. It is recommended that curing and protection should be started immediately after compaction of fresh concrete. The time the concrete surface loses its sheen may be taken as an indicator for this. Concrete starts losing sheen when the concrete surface starts losing moisture. Any delay or interruption in curing at this stage cannot be compensated later on by extending the duration of curing.

Ponding is the most effective method of curing concrete. But this method is not always possible owing to site constraints and some other factors. Covering the concrete surface with wet gunny bags or straw is also effective. This can be used easily almost anywhere, both at the construction site and the laboratory. Keeping formwork in place for a longer period also prevents rapid drying of wet concrete. However, wooden formwork may absorb moisture from concrete. Such formwork must be kept moist externally.

Curing with plastic films is ideal for large concrete surfaces. However, films should be properly placed and secured to prevent them from getting dislodged due to either wind or other construction activity. Membrane-forming curing compounds can also be used. However, these may be useful only for a short period of time as these may be disturbed by the construction process used. In addition, their effect on the bond at the construction joints needs to be checked and made good. Curing by sprinkling of water may result in cracking of concrete due to the temperature differential between concrete and the sprinkled water. Therefore this method of curing should be discouraged and discontinued with.

2 Measures to Improve Safe Life and Durability

Construction of concrete structures involves a number of different activities and stages. These activities and stages need to be planned and executed in the most efficient way so as to achieve the desired results.

A concrete structure is constructed to serve some particular purpose. This structure must serve the specified purpose for some specified minimum life (i.e., safe life) without compromising the safety of the users/ occupants. Some of the measures that help engineers achieve these objectives are discussed briefly below.

2.1 Constituents of Concrete

Cement	:	High-strength cement with low C3A content and moderate alkali content (5%–8%) and of uniform quality. Pozzolana or slag would be an advantage.
Aggregate	:	Impurities need to be controlled. Fines less than 0.3 mm to be controlled to ensure slump and stability.
Admixture	:	Selections efficient water reducers (superplasticizers) and air entrainers at high slump and ensuring good batching process is desired. Particle packing should be efficient (0.2 mm).

2.2 Mix proportion

A w/c ratio of less 0.45 is imperative for long-term performance. A cement content of more than 380 kg/m3 imparts a self-healing ability to the concrete. A stable mix at high slump requires good grading of sand and efficient admixtures. A small dosage (< 5%) of condensed silica fumes improves the strength and stability of concrete. A large dosage impairs constructability. Full scale site trials are necessary before the correct mix is selected.

2.3 Batching Plants

Modern batching plants aid selection of the optimum batching procedure. Each batch should be checked using control tests. Adequate number of sample tests and uniform quality control are essential.

2.4 Compactness of Concrete

Concrete should be compact and free from any voids if it has to last long and remain stable. Re-vibration of the top layer in deep members helps minimize voids under embedded steel. Also the concrete cover quality should be maintained by proper compaction, especially below the bottom and top bars.

2.5 Control on Cover

The long-term performance of concrete depends on the durability of cover concrete. Steel reinforcement is covered and protected by the cover concrete. However, the basic environment surrounding reinforcement bars may be destroyed by carbonation, i.e., by the reaction of atmospheric CO2 with Ca(OH) of concrete. Two essential considerations to ensure protection of steel reinforcement against carbonation are

- the thickness of cover concrete and
- the density of cover concrete.

The concrete cover, in addition to the protection it gives to steel, serves to enhance the bond strength and provides protection against fire especially to steel. The concrete cover thickness is generally governed by the

- measurement of bent or suspended bars,
- clearance width between formwork and rebar,
- amount of dislocation of the rebar cage during concreting, and
- height /thickness of spacers.

To ensure proper concrete cover the following checks are essential at the construction site:

- Inspection of rebar measurements, especially of bent or suspended bars
- Rejection of non-conforming bars
- Inspection of formwork for clearance of rebars prior to concreting

Dislocation of the reinforcement cage during concreting should be avoided completely. For this, a sufficient number of spacer and bridge planks should be provided. All factors that may produce deviation of the cage should be avoided.

Proper density of the cover concrete should be ensured by checking the resulting w/c ratio in the cover region. Note that the w/c ratio in the cover region should be more than the overall w/c ratio adopted.

2.6 Construction Joints

Construction joints should be properly done and checked for durability. Any laitance should be removed and joints finished with rich mortar.

2.7 Temperature Effects

One of the major causes of cracking is the temperature effect. Concreting is a chemical process involving an exothermic reaction with liberation of heat. Hence, temperature effects should be taken care of by the procedure described earlier in Chapter 24 in Section 24.6.

2.8 Simple Design

Large sections are easier to pour during concreting and do not deteriorate fast. The sections should have rounded smooth corners. Abrupt changes in the cross section should be avoided. Larger rebars take less space and make the section robust. Simplicity in design enables easy understanding of the bar schedule and hence fabrication mistakes at the site are reduced.

2.9 Training on good construction practice

The quality and durability of concrete components and structures very much depend on the training, skill, and experience of human resources involved at the various stages of the construction process. For this, constant and periodic training of workers and construction supervisors is essential.

3 Deterioration Model

Reinforced concrete is deteriorated by carbonation and by chloride ingress. Generally, deterioration occurs in two stages. The first stage is initiation and the second stage is progression of damage (Fig. 9). During the initiation stage the contaminants (chlorides and carbon dioxide) from the atmosphere reach the steel reinforcement inside concrete. During the progression stage the level of performance of the

reinforcement inside concrete. During the progression stage the level of performance of the structure comes down.

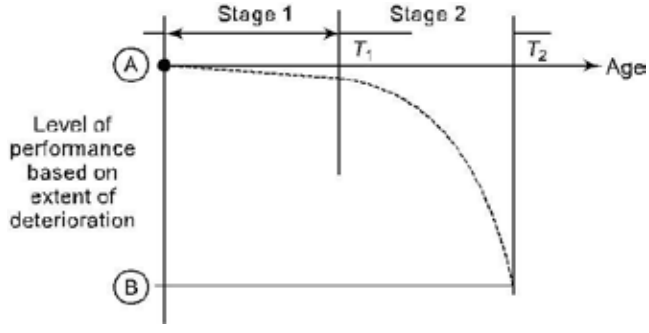


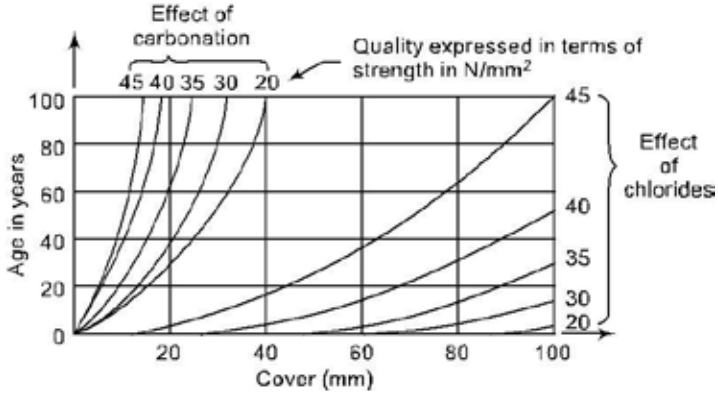
Fig. 9 Reduction in performance based on extent of deterioration

The age at corrosion activation is dependant on the type of concrete (quality expressed in terms of strength) and its cover thickness (Fig. 10). The penetration rate of CO2 from the atmosphere into concrete can be expressed as

$$d = k(t)^{0.5}$$

where d is the depth of penetration up to time t and k is the diffusion constant.

On the basis of Roberts and Atkins' observations (1997), it is possible to postulatea deterioration model for reinforced concrete. The model identifies eight distinct levels of deterioration, after various ages Ti. These are



1. Arrival of contaminants at the surface of concrete
2. Contaminant ingress
3. Onset of corrosion
4. Active corrosion
5. Delamination
6. Spalling
7. Reduction in steel area
8. Failure

Figure 11 shows these eight levels of deterioration. The damage can be assessed by the area loss of steel. The area loss per year, i, can be expressed as

$$i = A_{\text{loss}} / (T_n - T_0)$$

where Tn is the age at which assessment is made and T0 is age at the initiation of deterioration. On the basis of this deterioration model the maintenance routine of the structure is planned.

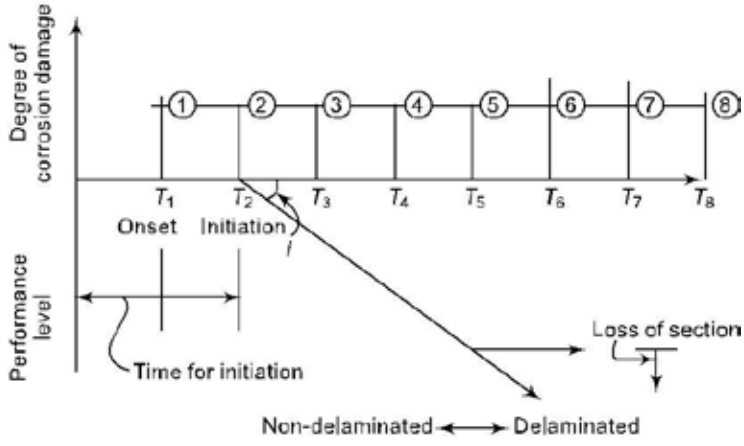


Fig. 11 Deterioration model

4 Inspection

The durability of the concrete structure depends on its rational operation and maintenance. Regular and systematic inspection is necessary in order to quantify the existing deterioration level of the structure. The way structures behave with time depends on the severity of the environment and the repair interventions undertaken. The following elements of investigation are necessary as a part of the overall maintenance while periodic inspection and reporting:

- Visual inspection
- Checking original designs, drawings, and calculations with respect to the current use of the structure
- Checking execution data including technical, non-technical, quality, and inspection reports.
- In situ testing: destructive and semi-destructive based on sampling
- Laboratory testing involving mechanical, chemical, and physical tests
- Performing recalculation based on all the above data for assessing the current status of the structure

5 Tests and Monitoring

The whole-life performance of the concrete structure can be effectively monitored by periodic testing. Periodic testing is much more involved than a simple cube compression test conducted at the time of construction. These tests conducted at periodic intervals on the actual structure should concentrate on the environmental

severity, structural detailing, loading conditions, existing cracks and their sizes, and the overall condition of the structure or member being investigated. The evaluation based on tests should include the condition of both concrete and reinforcing steel. The investigation procedure on concrete is shown in Fig. 12.

In situ load testing is required to assess the performance of the structural element under loading greater than the working load. A load test is undertaken either to clear a doubt regarding the acceptability of an element or to establish the behaviour of an existing structure for serviceability criteria. Where tests are undertaken to demonstrate the satisfactory behaviour under load, these are generally based on deflection measurements. The obtained results can be corroborated with the results of a computer analysis after accounting for the realistic properties of the structure under test. The results should show that at service load the deflections and strains are within acceptable limits. The deformations are almost completely recovered when the load is released.

Fig. 12 Concrete investigation method

Long-term monitoring of a structure can be used to evaluate deterioration with load and response under service conditions. When a structure is continuously deteriorating, monitoring can be used to decide on either retrofitting or replacement of the deteriorating component of the structure at a particular instant of time. Since the measurements are made over a long period of time, the instruments used should have long-term stability. Allowance for daily variation in temperature and seasonal changes should be made while interpreting long-term test results.

6 Repair Materials and Techniques

After the structural evaluation is over, appropriate repair materials and techniques must be carefully chosen to suit the behaviour, field condition, and future whole-life performance of the evaluated structure. Table 29.1 shows various types of repair techniques involving different repair materials applicable to the different types of defects mentioned.

Table 1 Repair materials and techniques

Repair technique	Material	Application
Injection	Epoxy resin	Fine cracks
	Polymer-modified	
Pressure grouting	Portland cement mortar	Large cracks
	Polymer mortar	Small holes
	Putties and caulks	Cavities
	Cement paste with filler	Joints
Normal grouting	Portland cement mortar	Large holes
	Latex-modified mortar	Cavities
	Polymer mortar	
Patching	Rapid setting mortar	Localized area
	Polymer resin	Shallow
	Portland cement mortar	
Placing	Portland cement concrete	Replacement
	Polymer concrete	
	Expansive cement concrete	
	Latex concrete	
	Epoxy concrete	
Overlaying	Asphaltic concrete	Thin surface layer
	Polymer concrete	
	Expansive cement concrete	
	Latex concrete	
	Epoxy concrete	
Coating	Polymer modified paints	Surface coating
	Mastic felt	

Prior to repair, all damaged and disintegrated portions should be removed until the undamaged parent material is exposed. This ensures good bonding of repair material with the parent material. Before finalizing the repair option, the whole-life cost model can be worked out with different alternatives. Figure 13 shows alternative costs over expected life using a particular discount rate. The whole-life cost is the sum of the first cost plus the discounted replacement cost in the future.

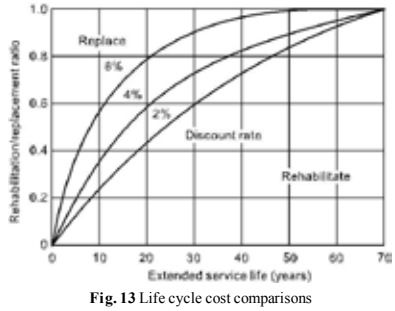


Fig. 13 Life cycle cost comparisons

Rehabilitation is less costly than replacement. It is important to reduce its cost. It is well known that one unit of maintenance cost will result in a reduction of four to five units of rehabilitation cost. This advantage results from the extension of the service life, leading to tangible benefits such as life extension and reduction in repair costs.

7 Maintenance Requirement

The purpose of the maintenance of a concrete structure is to ensure its safety and serviceability at acceptable performance levels. Structural safety and serviceability are essential. The performance level shows the level of satisfaction by the user with respect to the functional utility of the structure. This is illustrated with the help of a performance model in Fig. 14. As can be observed from the figure, the performance (A) of the structure deteriorates from the day the structure is opened for use and becomes unserviceable at stage B after, say, 100 years. However, the useful life of the structure may get terminated at stage C owing to the performance level going below the functionally acceptable limit. Hence the realized service life is less than that for which the structure was designed. In the absence of any regular maintenance this reduction can range from10 to 80 years depending on the severity of environment. To achieve the full designed service life, periodical maintenance thus becomes inevitable.

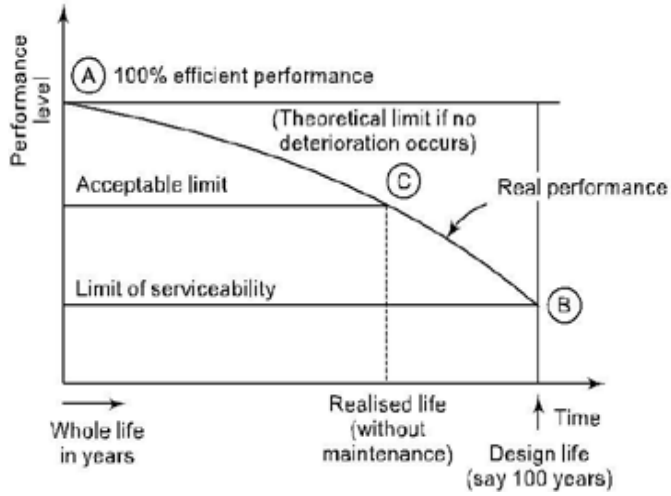


Fig. 14 Performance Model

29.8 Critical Stages of A Structure

There are six critical stages in the life of any structure. These are

1. conception
2. analysis
3. design
4. construction
5. service
6. failure/demolition

THE SOUTHERN CONSTRUCTION RESEARCH AND DEVELOPMENT SERVICE SOCIETY

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APPEAL

அன்புடையீர் வணக்கம் !

அகில இந்திய கட்டுநர் சங்கம் தென்னக மய்த்திற்கென்று சொசைட்டி ஒன்றினை உருவாக்க வேண்டும் என்ற உயரிய நோக்கத்தோடு 1982 ஆண்டு The Construction Research And Development Society என்ற பெயரோடு தென்னக மய்யத்தின் கட்டமைப்பாக தென்னக மய்யத்தின் பெரியவர்களால் உருவாக்கப்பட்டு அவர்களின் நிர்வாகத்திறனாலும் வழிகாட்டலாலும் தொடர்ந்து வளர்ச்சியடைந்து தென்னக மய்யத்தின் நிரந்தர உறுப்பினர்கள் ரு.10,000/-சந்தா செலுத்தி சொசைட்டியில் நிரந்தர உறுப்பினராக சேர்த்து உருவாக்கப்பட்ட இந்த அமைப்பில் நாமும் உறுப்பினர்களாக இருப்பதில் பெருமையேயாகும்.

சொசைட்டி உறுப்பினர்களின் தொழிலுக்கான மேம்பாட்டிற்கு அகில இந்திய முன்னாள் தலைவர் பீஷ்மா R. இராதாகிருட்டிணன் அவர்களும் அமரர் திரு. பழனி முதலியார், அகில இந்திய முன்னாள் காப்பாளர்கள் துணைத்தலைவர்கள் டாக்டர். D. துக்காராம், திரு. J.R. சேதுராமலிங்கம், திரு. P. நரசிம்மலு, திரு. மு. மோகன் அவர்கள் மற்றும் தென்னக மய்யத்தின் முன்னாள் தலைவர்கள், மூத்த உறுப்பினர்கள் சொசைட்டியின் வளர்ச்சிக்காக பாடுபட்டுள்ளனர்.

தென்னக மய்யத்தின் தலைவர் திரு. L. வெங்கடேசன் அவர்கள் சொசைட்டியின் மூலமாக தொழிலாளர் மருத்துவ முகாம் தொழிலாளர்கள் பயிற்சி முகாம், உறுப்பினர்களுக்காக கட்டிட பொருள்களுக்கான கலந்தாய்வுக் கூட்டங்கள் போன்ற நிகழ்ச்சிகளை நடத்தவும் ஆலோசனை கூறியுள்ளார்.

சொசைட்டியின் உறுப்பினர்கள் தங்களின் BIO-DAT வை முழு விவரங்களை சொசைட்டிக்கு உடனடியாக அனுப்பிவைத்தால் அடையாள அட்டை வழங்க ஏதுவாக இருக்கும்.

உறுப்பினர்களாகிய தாங்கள் அறிந்த கட்டுமான பொருள்களுக்கான உற்பத்தியாளர்கள், மெயின் டீலர்களை சொசைட்டிக்கு அறிமுகம் செய்து வைக்க கேட்டுக் கொள்கிறேன். கட்டுமான பொருள் உற்பத்தியாளர்கள் நவீன கட்டுமான பொருள் தயாரிப்பாளர்களிடம் இருந்து தரமான பொருட்களை சந்தை விலைக்கு குறைவாக வாங்கிக் கொடுக்க தாங்கள் ஆலோசனைகளை வழங்கலாம்.

சொசைட்டி உறுப்பினர்களுக்காக நிலம் வாங்கி வீட்டு மனைப்பிரிவுகளை ஏற்படுத்தி கொடுக்கவும், M-sand குவாரி பெற்றுக் கொடுக்கவும், சிமெண்ட், கருங்கல்குவாரி (Blue Metal) பெறுவதற்கு அரசிடம் அனுமதி பெறவும் ஆலோசனை கூறியுள்ளார்கள்.

எனவே சொசைட்டியின் வளர்ச்சியை கருத்தில் கொண்டு இதுவரை உறுப்பினர்கள் ஆகாதவர்கள் சொசைட்டியில் உறுப்பினராவதுடன் தங்களுக்கு தெரிந்த தென்னக மய்ய நிரந்தர உறுப்பினர்களை சொசைட்டியில் உறுப்பினராக்கி எங்களுக்கு ஆலோசனைகளையும் ஆதரவினையும் தருமாறு அன்புடன் கேட்டுக் கொள்கிறேன்.

அன்புடன்

K. அண்ணாமலை

INSTALLATION FUNCTION

The Installation Function of BAI-Southern Centre was celebrated in a grand manner. The function was conducted in a very popular venue Chennai Trade Centre on 27th April 2018 evening. Nearly 1000 Members attended the function.

The function started with an Invocation Song and Lighting of lamp by all the Dignitaries on the dais.

Shri.Mu.Mohan, All India Past Vice-President and Installation Committee Chairman welcomed the gathering.

The Chief Guest of the Installation function was Mr.M.V.Satish, Whole-Time Director & Sr.Executive Vice President (Buildings, Minerals and Metals), L&T Construction, Larsen & Toubro Limited (L&T) praised about BAI-Southern Centre's role in Construction Industry. On behalf of L&T, he praised about the various activities of Southern Centre and assured his fullest support to the Builders' fraternity.

Shri.A.Puzhalendi, All India President of BAI delivered his presidential address and appealed the gathering for unity among Members in brining transparency in the Government Tender.

Shri Bhisma R.Radhakrishnan, Past National President of BAI installed the New Team of Office Bearers under the stewardship of Mr.L.Venkatesan, S.Rama Prabhu as Vice Chairman, L.Shantha Kumar as Secretary, R.Parthiban as Treasurer and R.R.Sridhar as Joint Secretary. He installed all the EC members viz., Mr.K.Gopinath, Mr.M.V.HariKumar, Mr.A.Jayaseelan, Mr.M.Kannan, Mr.K.Koteswarachoudary, Mr.RM,Meenakshi Sundaram, Mr.K.R.Parthasarathy, Mr.M.Pasupathy, Mr.R.Ramesh, Mr.S.Saravana Perumal, Mr.S.Jeyaraman, Mr.A.Sathyanarayana, Mr.M.Sekar, Mr.Y.Srinivasan, Mr.J.Tajuddin. He outlined the duties and responsibilities of the Office Bearers. He praised the outgoing Team of Office Bearers under the Chairmanship of Mr.K.Venkatesan.

Our Guest of Honour Mr.M.Ponnuswami, CII Chairman of Tamilnadu graced the function and spoke about the role of CII in construction Industry.

Shri.K.V.Rangaswami, Past Director of L&T graced the occasion.

Mr.Thirusangu, All India BAI Vice President, South Zone II and Shri.Ayyanathan, BAI State Chairman for Tamilnadu, Pondicherry, Andaman & Nicobar Islands felicitated the New Team of Office Bearers.

Mr.L.Shantha Kumar, Secretary of BAI-Southern Centre proposed vote of thanks to all the participants.

The meeting was adjourned for fellowship and sumptuous dinner.

BAI-Southern Centre Installation Function

BAI-Southern Centre Installation Function

BAI-Southern Centre Installation Function

BAI-Southern Centre Installation Function

BAI-Southern Centre Installation Function

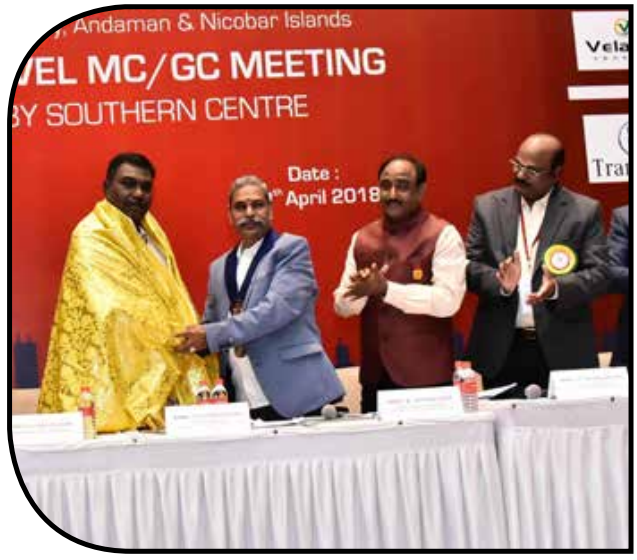
FIRST STATE LEVEL MC/GC MEETING

Hosted by Southern Centre on 28.04.2018 at Hotel Feathers,Chennai.

FIRST STATE LEVEL MC/GC MEETING

Honouring All India Vice President and State Chairman

FIRST STATE LEVEL MC/GC MEETING



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Generally, the issue of maintenance gets its due attention only during service. To enable good and proper performance, the planning for maintenance should start at the concept stage itself. For instance, if a structure is to be constructed in an aggressive environment, suitable material for the structure can be fixed even at the conception stage so that during service the structure is maintainable. The consideration of maintenance at different stages is pictorially represented in Fig. 15.

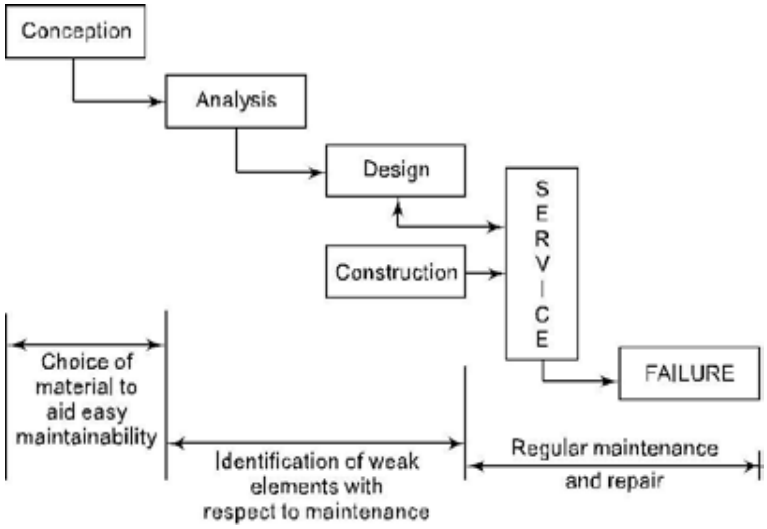


Fig. 15 Stages of structure evaluation and maintenance

9 Maintenance Planning

Maintenance work can be classified into the following five categories.

Cyclic This is preventive maintenance intended to take care of general deterioration, such as flushing down concrete faces to remove surface carbonation, application of protective coat(s) to concrete, etc.

Equipment replacement This includes replacement of bearings, expansion joints, etc.

Minor structural repair The repairs to spalled concrete, minor cracking, and staining.

Major structural repair This is undertaken when the structural stability or integrity is at stake. This includes major concrete repairs, stitching cracks, welding rebars, etc.

Replacement of components This entails replacement of a defective member such as a beam or a column with a new member.

These five maintenance options could be judiciously undertaken during the lifespan of the structure. The effect of continuous maintenance on the lifespan is illustrated in Fig. 16. Note that due to material degradation, loading, and foundation settlement the performance of the structure deteriorates progressively and becomes considerably less than that at the initial condition. Thus at a time interval T1 repair becomes necessary. At intervals T1 and T2, repairs 1 and 2 are performed to improve the serviceability condition either to the initial condition or even above that. At Td deterioration reaches such a level that it may not be worthwhile to repair the structure.

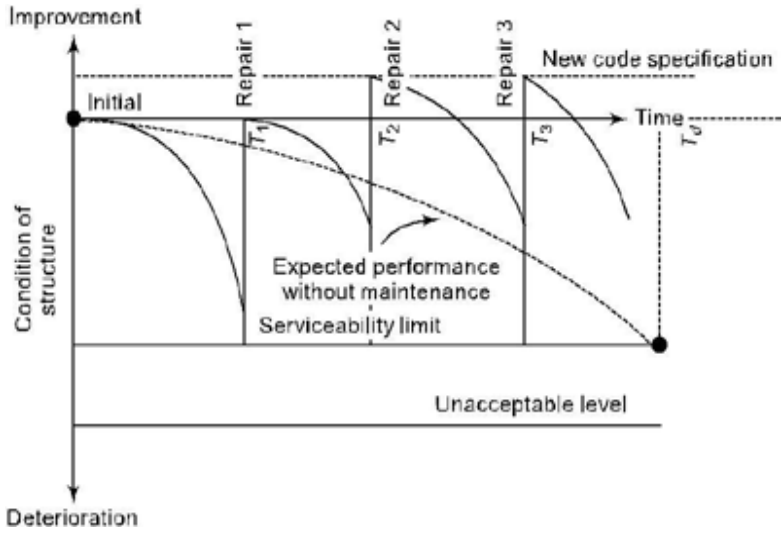


Fig. 16 Deterioration—Repair model

Generally, various parts of a structure are of varying quality and subject to different exposure conditions. So each element must be considered separately and its repair cost built into the life cycle cost, which includes costs of all the repairs at T1, T2, T3, etc. Each element must be assigned a life after which it must be either repaired or replaced.

10 Whole-life Assessment

Whole-life assessment is a method of obtaining data for the whole-life performance of a structure. Both the whole-life assessment and whole-life performance profile of a structure are computed with a view to minimize or optimize the total expenditure on the whole and not in one segment alone.

The method of whole-life costing is considered for comparing different alternative designs initially so that the maintenance expenditure is the least during the lifespan. The service life and maintenance strategy are closely related to the whole-life cost. Many countries of the world are now adopting some form of performance profiling for assessing the whole-life cost.

The whole-life assessment deals with specific structural elements and establishes their performance levels based on performance indicators. The indicators are then used to determine the type of maintenance action to be taken, together with the cost considerations.

Though some deterioration models for structures have been proposed, we still do not have a model with acceptable detail. Various techniques used have been either statistical or stochastic. These models are highly theoretical. They use mathematical techniques such as Markov chain or Monte Carlo simulation. What is really needed is an expert system for assessment, choice between different technical solutions, products, and intervention frequencies, etc.

Some maintenance needs to be carried out as a routine to achieve the desired economic life for the structure. Principles of quality assurance and certification should also be considered while constructing structures to ensure their enhanced life and serviceability.

The maintenance cost should be included as a sustenance fund in addition to allocating repair/rehabilitation/ reconstruction costs.

The whole-life cost, sometimes referred to as the life cycle cost, is a way of determining the total cost of a structure from initial conception to the end of its service life, dismantling, and final clearance. In this chapter we described the importance of maintenance in terms of the whole-life performance and cost. The lowering of the performance level with age has been described using a damage model. The level of performance based on the extent of deterioration has been described pictorially. The repair strategy and its influence on increasing the performance level have also been described. There are six critical stages in the evolution and life of a structure. Finally, the whole-life assessment and its relationship to the whole-life performance profile of a structure were discussed. A reinforced concrete structural system such as a bridge or a multi-storey building should be considered and operated as a system that requires continuous monitoring and repair. The challenge and major rewards for the community which use the system lie in following the correct methodology for maintenance, repair, and rehabilitation of the facility. Structural construction or optimization are only theoretical and do not include the whole-life assessment and cost.

SOUTHERN CENTRE SUB - COMMITTEE
2018- 2019

Sl.No.	Description	Chairman / Co - Chairman	Mob. No.
1	Grievances	S. Ramaprabhu	9840931799
		L. Shantha Kumar	9840086386
2	Southern Builder	Mr.Mu.Moahan	9444448989
		Mr.S.D.Kannan	9444562345
		Mr.P.K.P.Narayanan	9841016311
3	Seminar/Meeting	Mr.V.S.B.Sunder	9841023118
		Mr.A.Sathyanarayana	9841275752
		Mr. K. Gopinath	9840062785
4	Workers Training	Mr.P.Ramkumar	9080098800
		Mr.M. Sekar	9840172993
5	AUBAI	Mr.K.Ramanujam	9841096994
		Mr.J.R.Sethuramalingam	9940448870
6	Membership	Mr. K. Annamalai	9380142270
		Mr.R.Parthiban	9884231324
		Mr.R.R.Shridhar	9841576016
		Mr. S. Jeyaraman	9841517799
7	Taxation	Mr.S.D.Kannan	9444562345
8	CMDA/DTCP	Mr.S.Ramaprabhu	9840931799
		Mr.V.S.Ramakrishnanan	9841013338
9	Central PWD	Mr.M.A.Jesurajarajan	9444045013
10	Highway/PWD	Mr.R.Sivakumar	9884046446
		Mr.R.Nimrode	9600036701
11	Corporation of Chennai	Mr.M.Jaishankar	9444416707
		Mr.J.Nirmal Chand	9841011272
12	Railways	Mr.K.Venkatesan	9884412122
		Mr.B.Ramesh	9840080912
13	Workers Medical Camp	Mr.N.G.Lokanathan	9282116804
		Mr. S. Sathyamoorthy	9444087542
14	Promoters/Constructions	Mr.O.K.Selvaraj	9841576016
		Mr.S.Saravanaperumal	9444441234
15	Tours & Travels	Mr.R.Ramesh	9840427767
		Mr. J. Tajuddin	9444026286
		Mr.Y.Srinivasan	9444450135
16	Hospitality	Mr. K. Gopinath	9840062785
		Mr. A. Sathyanarayana	9841275752
17	BAICON/BAIMAT	Mr.J.R. Sethuramalingam	9940428870
		Mr. Mu. Moahan	9444448989
18	Fund Raising	Mr.R.Manoharan	9444000477
19	Builders Day	Mr.G.Diwakar	9444040652
		Mr.R.Balasubramaniam	9884061000
20	Family Meet	Mr.T.M.S.Sivakumar	9962670809
		Mr.J.Nirmal Chand	9841011272
21	Sports	Mr. Yogananda Gurusamy	9841039672
22	Diary/Calendar	Mr.T.V.Chandrasekaran	9444003311
		Mr.R.Rajendran	9841037285
		Mr.A.Udayashankar	9940486480

Town & Country Planning Deptartment
Completion Certificate - G.O.

ABSTRACT

Urban Development – Introduction of Provision for issue of Construction Continuance Certificate and Completion Certificate to all category of buildings except Industrial buildings and residential buildings upto 3 (three) dwelling units in the areas covered under the jurisdiction of Directorate of Town and Country Planning – Orders –Issued.

== == == == == == == == == == == == == == == == == == == ==

Housing and Urban Development [UD4(3)] Department

G.O.(Ms.)No.53 **Dated:16.04.2018**

விளம்பி வருடம், சித்திரை திங்கள் 3,
திருவள்ளுவர் ஆண்டு 2049.

Read:

From the Commissioner of Town and Country Planning, Letter Roc.No.19992/11- Special Cell, dated 27.07.2017.

======

ORDER:

In the letter read above, the Commissioner of Town and Country Planning has submitted a proposal for introduction of Completion Certificate in areas covered under the jurisdiction of Director of Town and Country Planning along with provision for inspection of any building for which the Planning Permission is issued by the Member Secretary, Local Planning Authorities / Regional Deputy Directors by the empanelled Architect / Engineer / Licensed Surveyor at two stages i.e., one at the plinth level stage to ensure that all the buildings are constructed without any setback violation or violations in dimension of the building as given in the approved plan and another one after completion of the entire construction.

2. The Government after careful examination have decided to accept the proposal of Commissioner of Town and Country Planning and to introduce the provision for issue of completion certificate to all categories of buildings except industrial buildings and residential buildings upto 3 (three) dwelling units in the areas covered under the jurisdiction of Directorate of Town and Country Planning as follows:

(a) **Construction Continuance Certificate (CCC):** The person, who obtained Planning Permission or the current owner of the property must apply to the Member-Secretary, Local Planning Authority or Regional Deputy Director as the case may be, or any other person to whom the powers to issue Completion Certificate (CC) or Construction

Continuation Certificate are delegated by Director of Town and Country Planning from time to time, when the construction is reached at plinth level requesting for permission to continue the construction. The application must be accompanied by a plan showing the site boundary, the dimension of the building and setback on all around and the plan must be authenticated by the applicant and Architect/ Structural Engineer / Licensed Surveyor. The Competent Authority on his own or through the empanelled professionals will cause the site inspection to verify the correctness of the building size and set back and to confirm that plan furnished by the applicant conforms to the construction made upto plinth level and is in accordance with the approved plan. A photograph of the building taken during the inspection with date stamp must be furnished. On receipt of the confirmation from the empanelled professionals, the competent authority will issue the Construction Continuance Certificate to continue the construction further. The application for Construction Continuance Certificate shall be disposed off within 15 days from the date of receipt of application.

(b) **Completion Certificate (CC)**: The person, who obtained Planning Permission or the current owner / builder / developer shall make an application to the Competent Authority for issue of Completion Certificate, when the construction is completed without any requirement of further civil works. The application should be accompanied by a drawing / plan showing the actual construction made at site. The competent authority shall cause an inspection of the site either by themselves or by an empanelled professional to check whether the construction is made in accordance with the approved plan. On confirmation that the drawing truthfully reflects the actual construction on site, which in turn conforms to the norms of Completion Certificate, the drawing should be stamped as ***"plan of the building as constructed"*** and the Completion Certificate issued. The Director of Town and Country Planning, Member-Secretary, Local Planning Authority or Regional Deputy Director as the case may be shall also verify and confirm whether compliance certificates are received from the various authorities, who have issued NOC earlier at the time of obtaining planning permission. The applicant or a buyer, or a worker or any other person shall not occupy the building without a valid Completion Certificate having been obtained from the concerned authority. The utility agencies shall disconnect the temporary connection after the construction work is over and thereafter a regular utility connection will be given only on receipt of valid Completion Certificate issued by the competent authority.

(c) A separate scrutiny fee for Completion Certificate of Rs.3/- sq.ft. of built up area shall be collected from the applicant at the time of issue of planning permission towards the cost of issue of completion certificate.

(d) In cases, where an empanelled professional is engaged for inspection, a sum of Rs.1/- per sq.ft. of plinth area shall be paid to a Licensed Surveyor/ Structural Engineer / Architect on submission of inspection report at plinth level stage and a sum of Rs.1.50 per sq.ft. of built up area shall be paid to the Licensed Surveyor/ Structural Engineer / Architect on submission of inspection report for completion of structural work and the balance amount will be retained by the competent authority.

(e) The tolerance limit / guidelines for issue of Completion Certificate will be in line with the norms / guidelines followed in Chennai Metropolitan Development Authority and format for obtaining certificate will be on the basis of National Building Code, 2016.

(f) The Completion Certificate norms will be made applicable prospectively from date of issue of this order and will be applicable for all planning permissions issued from the date of issue of this order.

3. The Government direct that the Director of Town and Country Planning shall in turn direct all the Local Planning Authorities to vary the Development Control Regulations through notification in district Gazette and publication in local area as per sub section (4) of section 32 of the Tamil Nadu Town and Country Planning Act, 1971 (Tamil Nadu Act 35 of 1972).

4. The Government further direct that the Director of Town and Country Planning shall empanel the professionals like Registered Architects / Structural Engineers and Licensed Surveyors at district level for outsourcing the inspection and scrutiny. If adequate number of professionals are not available in any particular district, professionals from an adjoining district may be assigned the task of inspection and certification.

5. The Director of Town and Country Planning shall issue operational guidelines for processing and issuing the Construction Continuation Certificate and Completion Certificate, covering application format on the basis of National Building Code, 2016, certification format, inspection method including outsourcing. The Director shall also issue norms detailing the tolerance / variations allowable with reference to approved plan in line with those as prescribed by Chennai Metropolitan Development Authority.

6. The Director of Town and Country Planning is directed to pursue action accordingly.

(BY ORDER OF THE GOVERNOR)

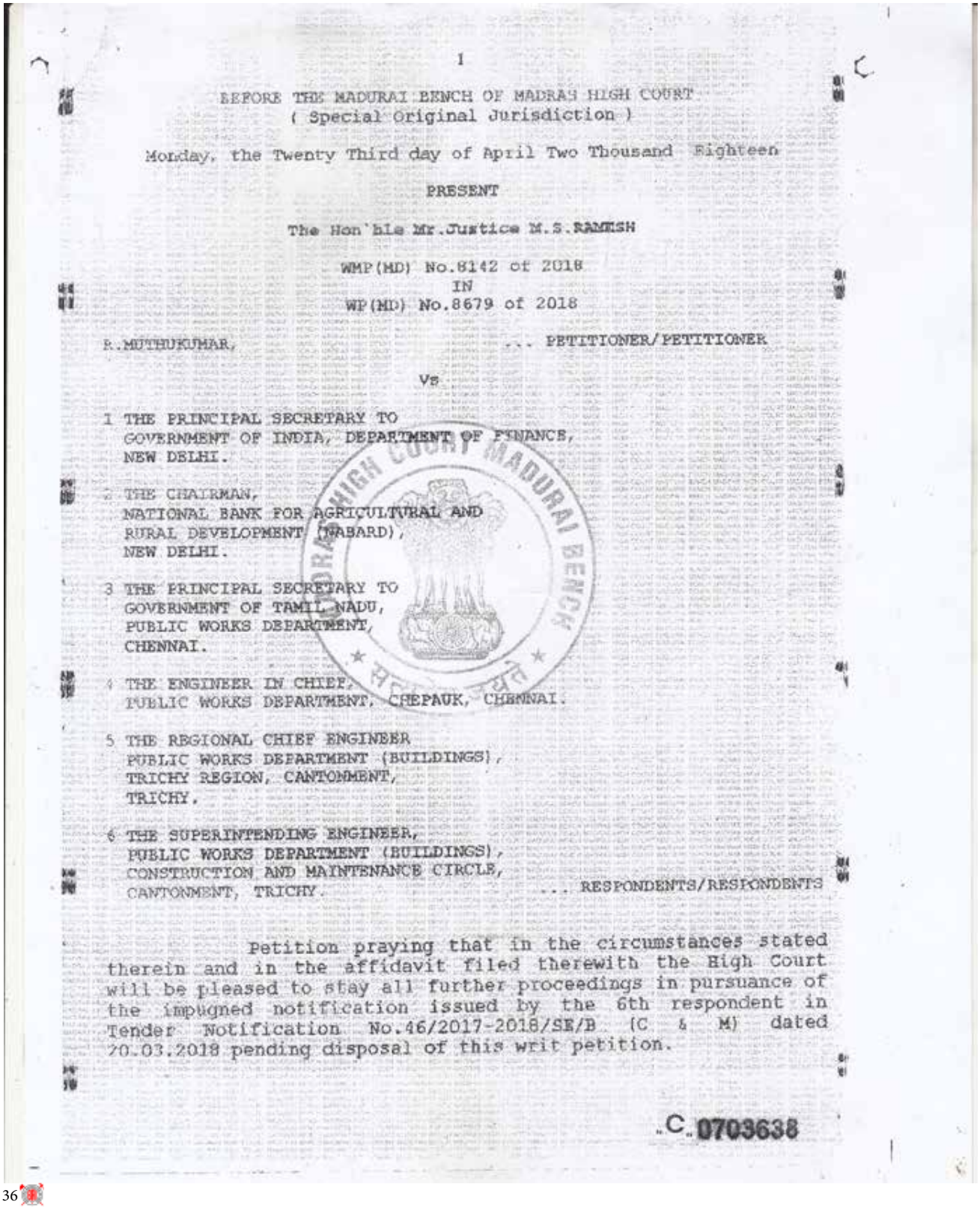
S.KRISHNAN
PRINCIPAL SECRETARY TO GOVERNMENT.

Labour Rate for the Construction of Individual Building

S.No.	Name of item	Rate in Rs.	Unit	
1	Civil work (Builtup area)	350	sqft	
2	Barbending & Centering	50	sqft	
3	Electrical work (Builtup area) without fittings	25	sqft	
4	Extra for Electrical work per service	1500	LS	
5	Plumbing work	14000	per toilet	
6	Plumbing work	3500	per kitchen	
7	Joinary work Doors & Windows	160	sqft	
8	Door frame making & readymade shutter fixing	90	sqft	
9	Tiles laying floor	15	sqft	
10	Tiles laying wall	17	sqft	
11	Tiles laying skirting	14	Rft	
12	Painting	20	Sqft	
13	Under ground sump	5	Lit	
14	Septic tank if required	5	Lit	
15	Compound wall (Average 6'0 height)	500	Rft	
16	Granite Laying	35	Sqft	
17	Weather Course Tile laying	20	Sqft	
	Labour Rate			
	Mason	Rs.	800	
	Male labour	Rs.	500	
	Female labour	Rs.	400	
	Stone cutter	Rs.	650	
	Carpenter & Barbender	Rs.	800	
	Helper	Rs.	600	
	Plumber	Rs.	800	
	Electrician	Rs.	800	

புதுக்கோட்டை மய்ய முன்னாள் தலைவரும் மாநில அளவிலான பொதுப்பணித்துறை துணைக்குழுத் துணைத்தலைவர் திரு. முத்துக்குமார் அவர்கள் பொதுப்பணித்துறையில் டெண்டர் package முறையில் கோரப்பட்டதை எதிர்த்து மதுரை உயர்நீதி மன்றத்தில் வழக்கு தொடுத்து தடையாணை பெற்றுள்ளார்.

திரு. முத்துக்குமார் அவர்களை கட்டுநர் சங்கம் சார்பாக பாராட்டுகிறோம்.



1

BEFORE THE MADURAI BENCH OF MADRAS HIGH COURT
(Special Original Jurisdiction)

Monday, the Twenty Third day of April Two Thousand Eighteen

PRESENT

The Hon'ble Mr.Justice M.S.RAMESH

WMP(MD) No.8142 of 2018
IN
WP(MD) No.8679 of 2018

R.MUTHUKUMAR, ... PETITIONER/PETITIONER

Vs

1 THE PRINCIPAL SECRETARY TO
GOVERNMENT OF INDIA, DEPARTMENT OF FINANCE,
NEW DELHI.

2 THE CHAIRMAN,
NATIONAL BANK FOR AGRICULTURAL AND
RURAL DEVELOPMENT (NABARD),
NEW DELHI.

3 THE PRINCIPAL SECRETARY TO
GOVERNMENT OF TAMIL NADU,
PUBLIC WORKS DEPARTMENT,
CHENNAI.

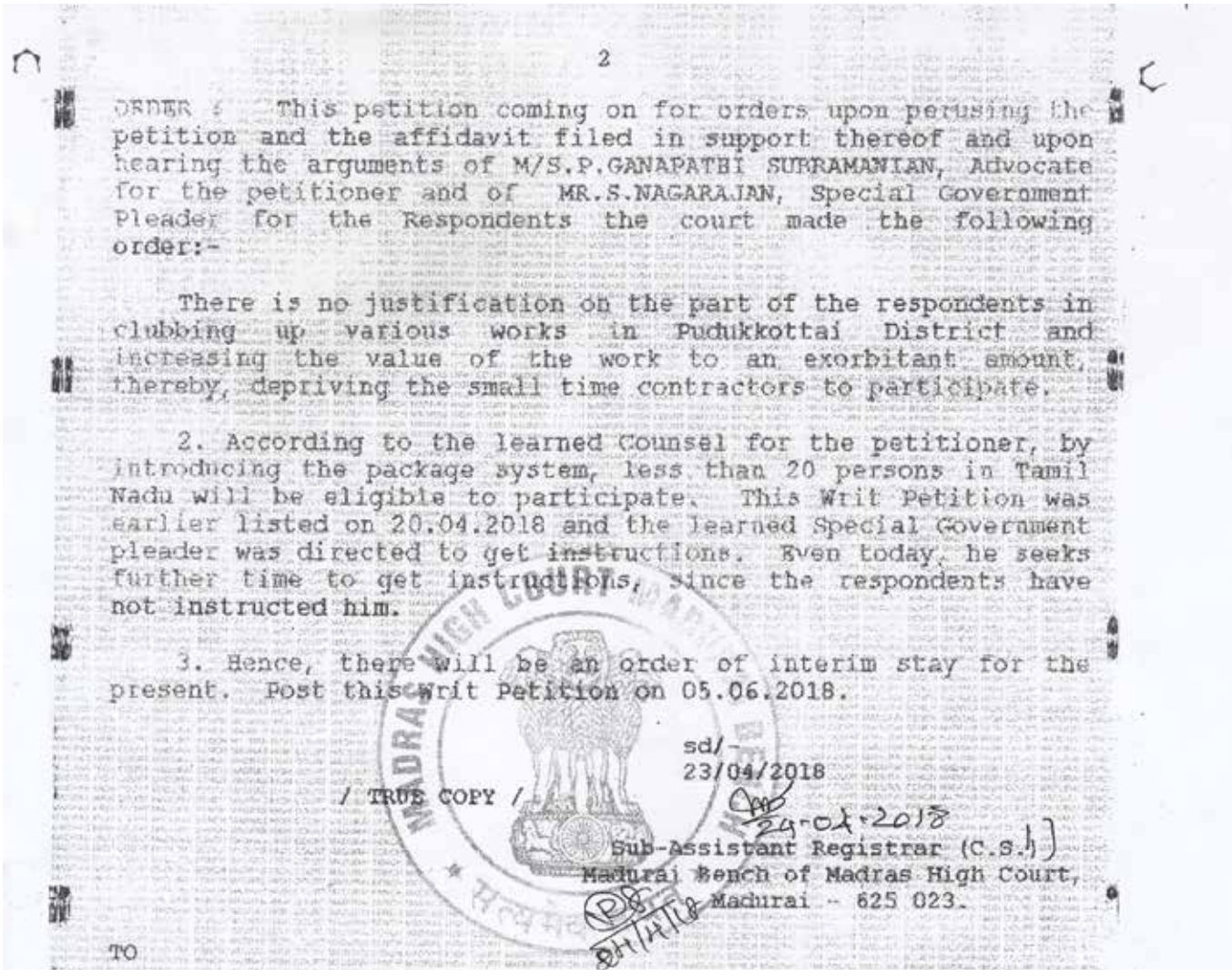
4 THE ENGINEER IN CHIEF,
PUBLIC WORKS DEPARTMENT, CHEPAUK, CHENNAI.

5 THE REGIONAL CHIEF ENGINEER
PUBLIC WORKS DEPARTMENT (BUILDINGS),
TRICHY REGION, CANTONMENT,
TRICHY.

6 THE SUPERINTENDING ENGINEER,
PUBLIC WORKS DEPARTMENT (BUILDINGS),
CONSTRUCTION AND MAINTENANCE CIRCLE,
CANTONMENT, TRICHY. ... RESPONDENTS/RESPONDENTS

Petition praying that in the circumstances stated therein and in the affidavit filed therewith the High Court will be pleased to stay all further proceedings in pursuance of the impugned notification issued by the 6th respondent in Tender Notification No.46/2017-2018/SE/B (C & M) dated 20.03.2018 pending disposal of this writ petition.

C 0703638



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ORDER : This petition coming on for orders upon perusing the petition and the affidavit filed in support thereof and upon hearing the arguments of M/S.P.GANAPATHI SUBRAMANIAN, Advocate for the petitioner and of MR.S.NAGARAJAN, Special Goverament Pleader for the Respondents the court made the following order:-

There is no justification on the part of the respondents in clubbing up various works in Pudukkottai District and increasing the value of the work to an exorbitant amount, thereby, depriving the small time contractors to participate.

2. According to the learned Counsel for the petitioner, by introducing the package system, less than 20 persons in Tamil Nadu will be eligible to participate. This Writ Petition was earlier listed on 20.04.2018 and the learned Special Government pleader was directed to get instructions. Even today, he seeks further time to get instructions, since the respondents have not instructed him.

3. Hence, there will be an order of interim stay for the present. Post this Writ Petition on 05.06.2018.

sd/-
23/04/2018

/ TRUE COPY /

24-04-2018
Sub-Assistant Registrar (C.S.)
Madurai Bench of Madras High Court,
Madurai - 625 023.

TO

Tender for 'packaged' PWD works worth ₹17.8 cr stayed

TIMES NEWS NETWORK

The Madurai bench of the Madras high court on Monday stayed the public works department notification dated March 20 inviting tender to carry out various works in Pudukottai district under a package system clubbing various works at a cost of ₹17.8 crore. Justice M S Ramesh who heard the case filed by contractor P Muthukumar from Pudukottai against the tender issued by the superintending engineer (buildings), Trichy, adjourned the case to June 5.

Petitioner's counsel Ganapathi Subramanian told the court that the PWD had on various occasions called for tenders to carry out seven works separately. The works included construction of ten classrooms, science laboratory, boys toilet and stadium work. All on a sudden, it cancelled all the tender notifications and issued a fresh one clubbing all the works at a cost of ₹17.8 crore. Also, a contractor who had completed works for ₹8.9 crore last year alone was eligible to participate in the tender process. The PWD's action had enabled around 20 contractors to participate in the tender process but deprived many like the petitioner in Pudukottai district an opportunity to take part in it.

'NORMS NOT FOLLOWED'

Besides, the PWD had said the tender schedule would be available from March 22 to 24 on the government website but it failed to upload the same. Further, it had also not followed the central vigilance commission's guidelines insisting on e-tender/e- procurement so as to bring about transparency. The PWD's action smacked of favouritism so as to benefit people of its choice, he said.

The petitioner had sent a representation to the superintending engineer on April 2 against the present package system while the builders association of India secretary had sent one on March 27. However, there was no action from the department, he said.

Media Focus

ரூ.17.81 கோடி டெண்டருக்கு இடைக்கால தடை

திருச்சி கண்காணிப்பு பொறியாளர் பதிலளிக்க ஐகோர்ட் கிளை உத்தரவு

CONGRATULATION

SELVARAJ O.K
Zonal Secretary
South Zone II
2018-2019

SIVAKUMAR R
State Secretary
Tamil Nadu, Puducherry &
Andaman Nichobar Islands
2018-2019

VENKATESAN K
State Treasurer
Tamil Nadu, Puducherry &
Andaman Nichobar Islands
2018-2019

NEW PATRON MEMBERS

Mr. C. Nandhakumar
M/s. Fashion Interior
No.5-A, Vivekananda
Nagar Extn.
200 FT Road, Kolathur
Chennai - 600 099
Ph: 2651 0005 / 9841584795

Mr. N. Mageshwaran
M/s Shree Constructions
Chennai Pvt Ltd
New No.25, Old No.41/1,
5th Cross Street, Trustpuram
Kodambakkam
Chennai - 600 024
Ph: 45340604 /9566220055

Mr. I. Vargheese
"Variety House"
No.51, Bazulla Road
T.Nagar
Chennai - 600 017
Ph: 2834 1778 / /9884800877

Mr. V.Saravanakumar
M/s Venus Homez(P) Ltd
No.93, Kundrathur
High Road,
Porur,
Chennai - 600 116

SOUTHERN CENTRE ACTIVITIES

02.04.2018

2018-19ம் தென்னக மய்ய ஆண்டிற்கான புதிய நிர்வாகிகள் பதவி ஏற்பு காலை 9.30 மணியளவில் மய்ய அலுவலகத்தில் நடைபெற்றது. இதில் அகில இந்திய முன்னாள் தலைவர் திரு. R.. இராதாகிருட்டிணன், முன்னாள் காப்பாளர் திரு. J.R. சேதுராமலிங்கம், காப்பாளர் திரு. K. இராமானுஜம், அகில இந்திய துணைத்தலைவர் திரு. M. திருசங்கு, முன்னாள் அகில இந்திய துணைத்தலைவர் திரு. Mu. மோகன், உடனடி மாநிலத்தலைவர் திரு. G. வேதானந்த், மாநிலத்தலைவர் திரு. S. அய்யநாதன், திரு. R. சிவக்குமார், உடனடி முன்னாள் மய்யத்தலைவர் திரு. K. வெங்கடேசன், மற்றும் அனைத்து செயற்குழு மற்றும் பொதுக்குழு உறுப்பினர்கள், துணைக்குழு உறுப்பினர்கள் உள்பட 45 உறுப்பினர்களுக்கு மேற்பட்டோர் கலந்து கொண்டு சிறப்பித்தனர்.

23.04.2018 CMDA கூட்டம்

CMDA Expansion of Chennai metropolitan area பற்றிய கூட்டத்தில் தென்னக மய்யத்தின் சார்பில் துணைத்தலைவர் திரு. S. இராமப்பிரபு அவர்களும், துணைக்குழு துணைத்தலைவர் திரு. V.S. இராமக்கிருஷ்ணன் அவர்களும் கலந்து கொண்டனர்.

27.04.2018 60th PWD PRODUCT ASSESSMENT COMMITTEE MEETING

சேப்பாக்கம் பொதுப்பணித்துறை வாளகத்தில் M-Sand approval ற்கான கூட்டம் 27.04.2018 அன்று மாலை 4.00 மணி அளவில் நடைபெற்றது. தென்னக மய்யம் சார்பாக திரு. V.S. இராமக்கிருஷ்ணன் அவர்கள் கலந்த கொண்டார்.

27.04.2018 பதவி ஏற்பு விழா

2018-19ம் ஆண்டிற்கான தென்னக மய்யத் தலைவர் மற்றும் மய்ய நிர்வாகிகளின் பதவி ஏற்பு விழா சென்னை வணிக வளாகத்தில் 27.04.2018 அன்று மாலை 6.00 மணி அளவில் நடைபெற்றது.

திரு. Mu. மோகன், பதவி ஏற்பு விழாக்குழுத்தலைவர் அவர்கள் விழாவிற்கு வந்திருந்த அனைவரையும் வரவேற்றுப் பேசினார். முதன்மை விருந்தினர் திரு. M.V. சதீஷ் Whole Time Director & Sr. Executive Vice President (Buldings, Minerals & Metals) L& T Consturction, L&T Ltd அவர்கள் கட்டுமானத்துறையில் தென்னக மய்யம் ஆற்றி வரும் செயல்பாடுகள் பற்றி புகழ்ந்துரைத்தார். கட்டுநர் முன்னேற்றத்திற்காக தன்னுடைய முழு ஒத்துழைப்பையும் தான் கொடுப்பதாக தெரிவித்தார்.

அகில இந்திய தலைவர் திரு. A. புகழேந்தி அவர்கள் தன்னுடைய சிறப்புரையில் உறுப்பினர்கள் ஒற்றுமையாக செயல்பட வேண்டும் என்று கூறினார்.

அகில இந்திய முன்னாள் தலைவர் பீஷ்மா R. இராதாகிருட்டிணன் அவர்கள் தென்னக மய்யத்தலைவர் திரு. L. வெங்கடேசன், மற்றும் மய்ய நிர்வாகிகளாக துணைத்தலைவர் திரு. S. ராமப்பிரபு, கவுரவ செயலாளர் திரு. L. சாந்தக்குமார், கவுரவ பொருளாளர் திரு. R. பார்த்திபன், இணைச் செயலாளர் திரு. R.R. ஸ்ரீதர் ஆகியோருக்கு பதவி பிரமாணம் செய்து வைத்து உரையாற்றினார். அவர் தனது உரையில் அலுவலக நிர்வாகிகளின் கடமை மற்றும் பொறுப்புகளை பற்றி கூறினார். சென்ற ஆண்டு பணியாற்றிய திரு. K. வெங்கடேசன் அவர்களின் தலைமையில் இருந்த நிர்வாகிகளிக் செயல்களை புகழ்ந்துரைத்தார்.

சிறப்புவிருந்தினராக திரு. M. பொன்னுசாமி, CII Chairman of Tamil Nadu அவர்கள் கலந்துகொண்டு சிறப்பித்தார். இவ்விழாவில் திரு. K.V. ரங்கசாமி, Past Director of L&T கலந்த கொண்டு சிறப்பித்தார்.

பதவி ஏற்பு விழாவில் நமது அகில இந்திய துணைத்தலைவர் தென் பிராந்தியம் -II. திரு, M. திருசங்கு அவர்களும், மாநிலத்தலைவர் தமிழ்நாடு, புதுச்சேரி மற்றும் அந்தமான் திரு. S. அய்யநாதன் அவர்களும் வாழ்த்துரை வழங்கினார்கள்.

கவுரவ செயலாளர் அவர்களின் நன்றியுரையுடன் கூட்டம் நிறைவடைந்தது. கலந்து கொண்ட அனைவருக்கும் இரவு விருந்து அளிக்கப்பட்டது.

28.04.2018 முதல் மாநில அளவிலான கூட்டம்

முதல் மாநில அளவிலான கூட்டம் தென்னக மய்யத்தின் உபசரிப்புடன் ஏப்ரல் 28 அன்று காலை 10.00 மணி அளவில் Hotel Feathers, சென்னையில் நடைபெற்றது. தமிழ்நாட்டில் உள்ள அனைத்து மய்யங்களின் மய்யத்தலைவர்கள் மற்றும் சிறப்பு அழைப்பாளர்கள் உட்பட 270 உறுப்பினர்கள் கலந்து கொண்டனர். இக்கூட்டத்தில் மாநிலத்தலைவர் திரு. S. அய்யநாதன் அவர்களும், அகில இந்திய துணைத்தலைவர் திரு. M. திருசங்கு அவர்களும் சிறப்பிக்கப்பட்டனர்.

கூட்டத்தில் திரு. S. அய்யநாதன் அவர்களின் தலைமையில் இன்றைய கட்டுநர் சமுதாயத்தில் உள்ள பிரச்சனைகள் பற்றி விவாதிக்கப்பட்டது. கவுரவ செயலாளர் திரு. L. சாந்தக்குமார் அவர்களின் நன்றியுரையுடன் கூட்டம் இனிதே முடிந்தது.

BUILDERS ASSOCIATION OF INDIA

(All-India Association of Engineering Construction Contractors)

SOUTHERN CENTRE

"Casa Blanca", 2nd Floor, No.11(Old No.6), Casa Major Road,
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Web Site: www.baisouthern.com | E-mail: baisouthern@yahoo.com

அன்பார்ந்த உறுப்பினர்களுக்கு,

அகில இந்திய கட்டுநர் வல்லுநர் சங்கத்தின் பெருமை மிகு தென்னக மய்யத்தின் கவுரவ பொருளாளராக தேர்ந்தெடுத்தமைக்கு என் முதற்கண் நன்றியைத் தெரிவித்துக் கொள்கிறேன். நமது மய்யத்தின் வலிமை பெருகவும் நாம் ஒன்றுபட்டு உறுப்பினர்களின் இடர்பாடுகள் நீங்கிடவும் இந்த வருடமும் உங்களின் நல்லாதரவு தொடர்ந்து கிடைக்க வேண்டும் என்று கேட்டுக்கொள்கிறேன். மேலும் மய்யத்திற்கு நிரந்தர உறுப்பினர்களை அதிக அளவில் சேர்க்க உதவுமாறு கேட்டுக் கொள்கிறேன்.

உங்களின் பேராதரவும், உங்களின் ஊக்கமும் சேர்ந்ததினால்தான், அகில இந்திய அளவில் உறுப்பினர்கள் எண்ணிக்கையில் அதிகம் பெற்ற மய்யம் என்ற பெருமைக்கான விருதை தொடர்ந்து பெற்று வருகிறோம் என்பதை மிக்க மகிழ்ச்சியுடன் தெரிவித்துக்கொள்கிறேன். இந்த உறுப்பினர் எண்ணிக்கையை மேன்மேலும் உயர்த்தி இந்த வருடமும் அதிக உறுப்பினர்களை சேர்த்த மய்யம் என்ற பெருமையை பெற ஆதரவு தர வேண்டும் என்று உங்கள் அனைவரையும் என் இருகரம் கூப்பி மிகுந்த அன்புடன் கேட்டுக்கொள்கிறேன்.

ஆண்டு சந்தா உறுப்பினர்கள் 2018-19 ம் ஆண்டிற்கான சந்தாத் தொகையை இந்த வருடம் உடனடியாக தென்னக மய்ய அலுவலகத்தில் செலுத்தி உறுப்பினர் சேர்க்கையை புதுப்பித்துக் கொள்ளுமாறு பணிவன்புடன் கேட்டுக்கொள்கிறேன். சந்தாத்தொகையை பணமாகவோ அல்லது காசோலையாகவோ "பில்டர்ஸ் அசோசியேஷன் ஆப் இந்தியா" என்ற பெயரில் மேற்கண்ட விலாசத்திற்கு நேரடியாகவோ தபால் மூலமாகவோ அனுப்பி வைக்குமாறு கேட்டுக்கொள்கிறேன்.

2018-19 ஆம் ஆண்டிற்கான உறுப்பினர்கள் சந்தா விபரம்

வ.எண்	விவரம்	உறுப்பினர் சேர்க்கை தொகை
1.	நிரந்தர உறுப்பினர் சேர்க்கை தொகை (Patron Member Fees) (நிரந்தர உறுப்பினர்களுக்கு புகைப் படத்துடன் கூடிய உறுப்பினர் அடையாள அட்டையும், சான்றிதழும் வழங்கப்படும்)	Rs.29,700/-
2.	புதிய வருடாந்திர உறுப்பினர் கட்டணம் (சான்றிதழ் மட்டும் வழங்கப்படும்)	Rs. 3,745/-
3.	உறுப்பினர் புதுப்பித்தல் கட்டணம் (சான்றிதழ் மட்டும் வழங்கப்படும்)	Rs. 3,627/-

மேற்கண்ட கட்டணத்தை Electronic Clearing Service (ECS) மூலமாகவும் கீழ் கண்ட வங்கிக்கு செலுத்தலாம். பணம் செலுத்திய விவரத்தை நமது அலுவலகத்திற்கு தெரிவிக்கும்படி கேட்டுக் கொள்கிறோம்..

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IFS CODE : IDIB 000E004

இப்படிக்கு,
உங்கள் அன்புள்ள

R. பார்த்திபன்
கவுரவ பொருளாளர்

WHY I HAVE TO JOIN BUILDERS' ASSOCIATION OF INDIA?

Along with our existing 2500 members you are very special to us !

This is a forum where people in construction industry together, work for the interest of the members mutually supporting each other in other words, professional fraternity prevails here which helps not only in business development but also in taking the business to heights.

On the economic front we individually play a vital role in the nation building, by being the second largest contributor to GDP and second industry to promote employment. As nation is progressing, opportunities available in plenty for all of us. In such a scenario you are ahead of others to grab the opportunities.

Prime motto of the association is to safeguard the member's interest. Being strong means higher representation. Instead of a lone voice, we can represent individual and industry concerns, as a mighty association with unity to Government and to other areas, where it should be. With our strong functioning we represent few government bodies also.

We are an active association. We often meet. Every month we have meetings and we do have extraordinary meetings to discuss important matters. We have our association office at prime location with dedicated staff. We have strong Office bearers supported by Executives, General and Marketing bodies to carry out the office of the association.

You will be always updated on the industry with recent updates, developments etc., in and around the industry. We conduct training and seminars frequently on industry updates. We have our own structured Corporate Social Responsibilities. We circulate a monthly journal by name "Southern Builder", with an expertise editorial board, which keeps you updated on industry happenings.

BUILDERS' ASSOCIATION OF INDIA – SOUTHERN CENTRE

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Web: www.baisouthern.com • E-mail: baisouthern1950@gmail.com

Estd : 1941

BUILDERS' ASSOCIATION OF INDIA

(All India Association of Engineering Construction Contractors)

Southern Centre Estd : 1950

MEMBERSHIP APPLICATION FORM

To
The Secretary,
BAI - Head Office
G-1/G-20, 7th Floor, Commerce Centre
J. Dadajee Road, Tardeo
MUMBAI – 400 034
Ph : 022-2352 0507 / 2351 4802
Website : www.baionline.in

Through
The Honorary Secretary,
BAI - Southern Centre
"Casa Blanca", 2nd Floor,11, Casa Major Road,
Egmore, Chennai - 600 008.
Phone : 044-28192006,28191874
Web : www.baisouthern.com
E-mail : baisouthern1950@gmail.com /
baisouthern@yahoo.com

Dear Sir,

Please enroll my/our name (s) PATRON / RENEWAL Member of Builders' Association of India. I/We am/are connected with the Building Profession / Trade / Construction industry as (please tick relevant box/s)

- ☐ Civil Construction Contractors
- ☐ Electrical
- ☐ Plumbing
- ☐ Fabrication
- ☐ Roads
- ☐ Water Proofing
- ☐ Interior decorator
- ☐ Repairs/Maintenance
- ☐ Real Estate Developer / Promoter
- ☐ Architect/Engineer
- ☐ Transporter
- ☐ Demolition
- ☐ Manufacturers /Suppliers
- ☐ Dealers/Hirers
- ☐ Engineering College/Polytechnics
- ☐ any other (specify)

Registered With

- ☐ Central PWD
- ☐ State PWD
- ☐ MES
- ☐ Railways
- ☐ Other State/Central Govt.Dept.(specify)

_____

_____

- ☐ any other (specify)

_____ _____ _____

_____ _____ _____

I /we specialise in _____

I/We have read the Rules and Regulations of your Association and agree to abide by the same. Please find herewith sum of Rs._____/- (Rupees_____ _____) by Cash/Cheque/Demand Draft No _____ Dated _____drawn on_____ in favour of "BUILDERS ASSOCIATION OF INDIA" towards the membership subscription.

Yours faithfully,
(For & On Behalf of)

Date : .....

(To be signed by Proprietor / Partner / Director of Attorney / Authorised Signatory)

Fill below in Block letters:

I. Full Name and Address.....

.....

.....

.....

Tel : Office : ..... Res ..... Mobile: .....

GST No : ..... E.mai : .....

2.Give names in case of partnership firm/ Ltd Company /Institution and indicate against each whether Partner / Director / Executive attorney

a)_____

b)_____

c)_____

d)_____

Name of the Person who will attend and vote at the meeting with residence address and contact numbers

a)_____

b)_____

c)_____

d)_____

Res / Address. & Tele. No. .....

.....

.....

PROPOSED BY .....

SECONDED BY .....

APPLICATION IN ORDER : FEES RECEIVED Rs. _____ Receipt No. _____

_____Date _____ Accepted by the Managing Committee at its meeting held on _____

at _____

SECRETARY'S NOTING SECRETARY

The Membership fees

The Patron Membership fees Rs.29,700/- (Inclusive of GST @18%)

Renewal Membership fees Rs.3627/- (Inclusive of GST @18%)

Annual Membership fees Rs.3745/- (Inclusive of GST @18%)

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94443 80781 / 99625 87979

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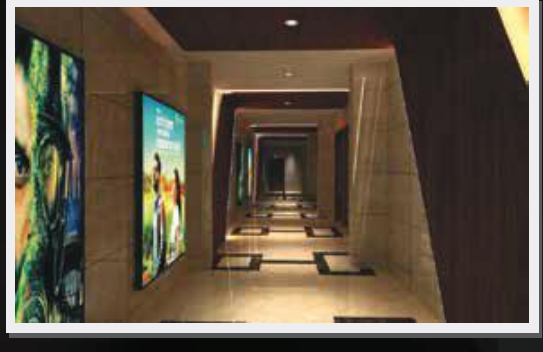

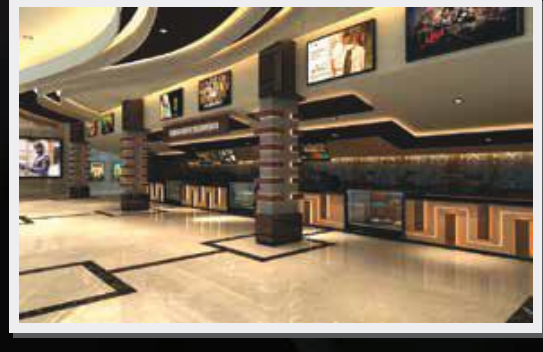

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