

Lesson – 1. MAINTENANCE OF BUILDING

Topic: PAINTING OF BUILDINGS

Subject: Maintenance and Rehabilitation of Structures

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PAINTING OF BUILDING:



- Introduction
- Importance and necessity of painting of building
- Types of paints
- Painting on old and new surfaces
- Painting on steel and wood works
- Causes, defects and remedies in painting
- Paints for wallsurfaces
- Etc....

INTRODUCTION

Painting is a very important and costly activity for the maintenance of buildings. Different types of paints are used for painting different parts of a building. Here we will discuss the painting of the following items:

1. Painting of cement plastered walls
2. Painting of timber doors and windows
3. Painting of iron and steel grills , gates , etc.
4. Painting of G.I. sheets , A.C. sheets , etc.

Nowadays, people have become more conscious of beauty , brightness , aesthetics , etc. Moreover , todays buildings tends to be tall and we need more durable paint for these buildings. Many people want luxurious settings in their buildings. Paint industry has also risen up to exploit this demand.

IMPORTANCE OF PAINTING OF BUILDING

House painting is absolutely a quick and easy way to refresh your home and it completely changes the aura of your house. A fresh coat of paint adds value to your home and makes it more attractive. Most people have their house painted because the old paint gets damaged by the weather but that itself is not the reason.

Painting the building interior and exterior will certainly increase the valuation of your property. Both interior and exterior paint jobs can lead to great Returns on Investment. A newly painted home will be worth more and it may also attract a higher number of buyers.

Painting the building once in two to three years will upgrade its visual appeal. Painting is used to protect all sorts of buildings and structure from the effects of water and sun.

NECESSITY OF PAINTING OF BUILDING

There are main reasons why painting is essential for building:

1. Increase resale value of building
2. boost Visual Appeal
3. Update your style
4. Hiding the Exterior Flaws
5. Keep moisture out
6. Improve Indoor Air Quality
7. Inexpensive Removal
8. Prevent staining and Peeling
9. Keep Dust and Dirt to minimum
10. Positive Energy Flow

House painting is needed for many reasons but paint also our homes primary lines of defense against weather , insects , and other damage.

POINTS TO BE CONSIDERED FOR PAINTING ON OLD SURFACE:

The following points should be kept in , mind while painting old surfaces:

- Any existing paint showing excessive flaking , bleaching , or saponification should be removed by scrapping and washing and the surface allowed to dry completely.
- Any damage to the plaster in removing old paint shall be repaired.
- Dry distempers and lime wash should be totally removed prior to painting. It may sometimes necessary to wet the surface before scraping.
- Previously oil painted surfaces should be sanded thoroughly to remove loose particles and made dull and matt for better adhesive.
- All surfaces should be perfectly dry prior to the application of any priming coats.
- In case of painting during the rain, the surfaces should be allowed to dry out completely for 2-3 days of total sunshine before commencing painting.

METHOD OF REMOVAL OF MOULD , MOSS , ALGAE , FUNGUS , ETC.

During maintenance of a building it is necessary to prevent the growth of mould , moss , algae , fungus , etc. In most cases , they grow where there is moisture. It is very common that they grow on top of roof slabs , especially in rainy season unless proper care is taken to remove them.

The following chemicals may be used to destroy the growth of mould or fungus:

- (1) Any existing mould growth or fungus should be completely removed by scrapping and rubbing down the surface thoroughly with bristle brush and sand paper. The surface should be washed down with clean water and allowed to dry. Apply Ammonical Copper Solution on the surface and after 1 to 2 days wash the surface.
- (2) 2.5% Magnesium fluoride.
- (3) 2% sodium pentachlorophenate.
- (4) Mix about 200 g of bleaching powder in 11 litre of water to prepare bleaching powder solution.

REMOVAL OF OLD PAINT FROM STEEL AND WOOD ETC.

The followings method may be used:

- (1) Use readymade paint removal solution available in the market. The paint wrinkles on application and can be removed by a painters steel plate. Wash down the surface by turpentine.
- (2) Dissolve caustic soda with about 50 times its volume of water and apply the solution on the old painted surface. The paint film gets lifted. Remove it by using clean water and scraping. Use vinegar to wash all the remaining alkali.
- (3) Burn off the paint using blowlamp starting from the bottom of painted surface. Remove paint with a stripping knife.



DEFECTS , CAUSES AND REMEDIES IN PAINTING

1. BLISTERING

- Causes: These are formed by vapour trapped inside Non-breathing types of paints.
- Remedies:
 1. Emulsion paint provide a porous coating and allow moisture to pass through.
 2. Allow surface to be fully dry before painting
 3. Avoid painting under direct sunlights.



2. PEELING

- Causes: - Painting is done over a greasy or dirty surface .
 - When moisture is trapped.
 - Paint applied on wet condition.
 - Poor adhesive quality of paint .
- Remedies: 1. Emulsion paint provide a porous coating and allow the moisture to pass through
- 2. Mix paint well before application
- 3. Ensure moisture free surface before Painting.



3. CRACKING

- Causes: - Excessive use of putty or very thick coat of paint.
 - Cracks in the plaster or masonry.
 - Painting improperly seasoned wood.
- Remedies: 1. Regulate the thickness
2. Use well seasoned timber.
3. Allow the under coat to dry completely before applying new coat.
4. The defective coat must be completely removed , rubbed down to a smooth face and primed before re- painting



4. FLAKING

- Causes:
 - Poor surface preparation.
 - Paint with poor flexibility and adhesion.
 - Paint film is not having elasticity.
- Remedies:
 1. Use plastic emulsion paints.
 2. Use paint with good elasticity and Flexibility.
 3. Cleaning the surface for dust and dirt before painting.




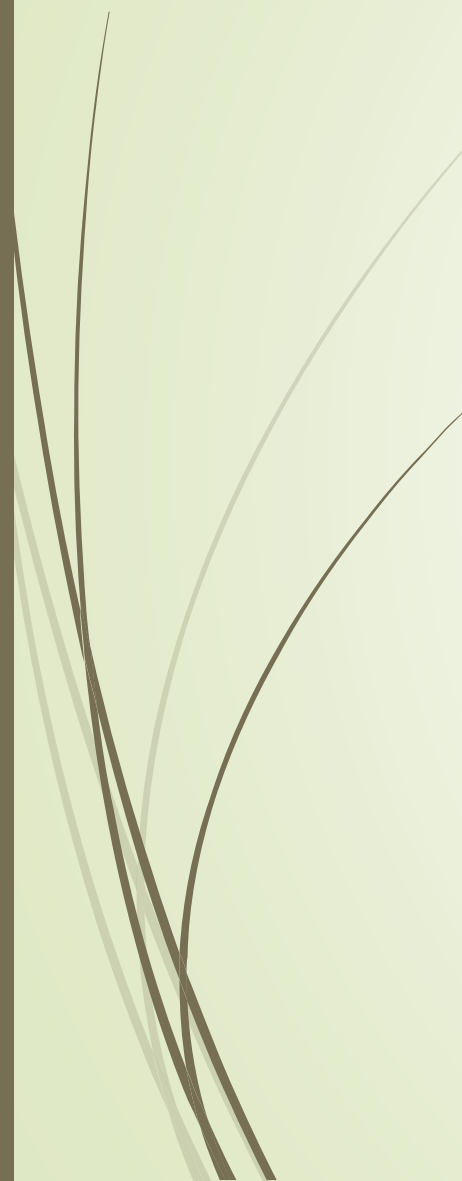
FLAKING



5. BLEACHING

- Causes: Due to alkali reaction with the binders used in Oil based paint.
- Remedies:
 1. Allow the plaster to cure after the recommended coat of lime wash is applied.
 2. for a new painting job , the surface should be primed with an alkali resistance primer.
 3. For an old plastered surface completely removed the affected area by washing with water and scrapping.



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- ▶ Bittiness
 - ▶ Brush mask
 - ▶ Chipping
 - ▶ Chalking
 - ▶ Efflorescence
 - ▶ Loss of gloss and discolouration
 - ▶ Patchiness
 - ▶ Sagging
 - ▶ Wrinkling
 - ▶ Slow drying
 - ▶ Algae and fungus growth.....Ref. Architecture Guide.....

TYPES OF PAINTS USED IN BUILDINGS:

Different types of paints used in building are:

1. Paints for plastered walls
2. Paints for wood work (doors , windows)
3. Paints for metal (steel grills , gates , etc.
4. Paints for G.I. Sheet , Asbestos cement sheets , plastic sheets etc.

1. PAINTS FOR PLASTERED WALLS:

The paints used for plastered walls and ceilings are as under:

- (1) White washing and Colour washing** using fat lime mixed with water.
- (2) Cement paints**
- (3) Dry distemper**
- (4) Ordinary emulsion paints.**
- (5) Acrylic plastic emulsion paints.**
- (6) Exterior paints:**

2. PAINTS FOR STEEL AND WOOD WORK:

(1) Enamel paints:

These paints contain-resinous matter which forms smooth and hard film.

In enamel paints , ordinary turpentine resins are used , while in synthetic enamel paints , plastic alkyl resins are used.

(2) Varnishes and polishes:

These are used for wood work.

Primer coats :

After the wall has dried and matured for few months , a coat of white cement primer is applied. Irregularities of the surfaces can be rectified by applying putty before painting is started. Similarly , on wood and steel surface , primer coat is applied before painting is started.

The covering capacity of these primers is about 12 to 15 m²/lit per coat.

Filler coats

On the plastered surfaces , filler coat is applied over the prime coat. Usually wall putty is used for filler coats . The function of filler coat is to fill small cracks and dents on the plastered surface.

In ordinary house construction , **Plaster of Paris** is used as putty. It can be prepared by mixing powdered chalk with 5 to 10% enamel pain and 25% to 30% of water. These are mixed wall to form a homogeneous mixture.

Painting of Newly Constructed Plastered Walls:

The painting work of newly constructed plastered surfaces can be divided into five steps:

1. Cleaning the surface:

The surface of plaster or concrete should be cleaned of any dust, dirt, etc. before painting. Then the surface should be cleaned by sand papering. For different surfaces, different sand papers are used.

1. Application of primer coat:

The primer coat shall be applied only after 3 to 6 months of the completely dry surface. The primer is alkali resistant which neutralizes the surface to be painted.

1. Application of filler coat:

On the plastered surface, filler coat is applied over the primer coat. Usually wall putty is used for filler coats. The function of filler coat is to fill small cracks and dents on the plastered surface.

1. Application of first undercoat of paint

2. Application of finishing coat

Points to be Considered in New Painting:

Newly constructed concrete or plastered surfaces contains some amount of moisture. They are highly alkaline. Hence , it is desirable to paint these surfaces only after 3 to 6 months the completion of plaster work.

1. Cement paints has to be applied to the wet surfaces.
2. Atleast three coatings of paint should be given to the new surfaces:
 - Primer coat
 - Under coat
 - Finishing coat
1. The final finish in the finishing coat can be given as follows in order of smoothness:
 - Mat finish
 - Eggshell finish
 - Oil gloss finish

Painting with Different Paints:

(a) White washing or colour washing:

As this type of painting is used for low cost buildings , preparation of wall surface is not given much importance. It is normally don with village houses to reduce the cost of painting.

(b) Painting with cement plaster:

The cement paint is available in the powder form and in many colours. Some of the popular cement paints available in the market are:

- Snowcem
- Supercem
- Classic
- Aquolac , etc.

(d) Painting of Iron and Steel Work:

For painting of iron and steel work , usually enamel paints are used. Ordinary emulsion paints are made from natural resins like turpentine. Synthetic enamel paints are made from synthetic alkyd resins. Enamel paints are available in interior and special exterior grades. In buildings these paints are mainly used for painting iron and steel items such as steel windows , iron grills , etc. They are available as ready-mixed paints. Turpentine is used as thinner.

(e) Painting of woodwork:

The painting of woodwork can be done in five operations. For painting woodwork enamel paint is used.

1. Removal of knots and preparation of surface
2. Applying primer coat
3. Stopping and filling (filling holes with putty)
4. Applying under coat
5. Applying top coats.

Types of paint and its Covering capacity

Type of paint	Covering capacity per coat on new surface
(a) Interior Wall Paints: 1. white wash 2. colour wash 3. cement primer	6 – 7 m ² /kg 5 – 6 m ² /kg 12 – 15 m ² /lit
(b) Exterior Paints: 1. ordinary cement paint 2. acrylic plastic emulsion paint	2 – 4 m ² /kg 5 – 6 m ² /kg
(c) Metal and Wood Paints: 1. wood primer 2. steel primer 3. aluminium paint	14 – 18 m ² /kg 14 – 18 m ² /kg 20 – 22 m ² /kg

CONCLUSION

The benefits of painting are to increase resale value of building , boost visual appeal , keep moisture out , prevent staining and peeling and gain positive energy flow in building. There are many defects in painting like bleaching , flaking , cracking , peeling , blistering etc. Painting is a very important and costly activity for the maintenance of buildings. Different types of colors used in painting like wood primer , steel primer , aluminum paint , ordinary cement paint , dry distemper , cement paint , plastic emulsion etc. Painting the building interior and exterior will certainly increase the valuation of your property. Both interior and exterior paint jobs can lead to great Returns on Investment. A newly painted home will be worth more and it may also attract a higher number of buyers. Painting of the structure is useful to increase the life of the structure.





THANK YOU.....