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PLASTERING, PAINTING AND POLISHING

13.1 INTRODUCTION

After the completion and making the building infrastructure strong in order to save it and its fittings from the effect of weather, and to give it an attractive look, the plaster, painting and polishing work is to be done.

13.2 OBJECTIVES

After going through this lesson, you will be able to:

- explain what is the necessity of plaster in inside and outside the buildings and the rooms;
- describe the types of plaster;
- describe the precautions to be taken while covering the infrastructure through these processes;
- describe the process and varieties of covering and making a building attractive.

13.3 CEMENT PLASTER

Cement plaster is generally used with 13 mm thickness and some times it can be of 19 mm thickness also. 19 mm plaster is done in two parts. First layer is of 13 mm and 2nd is of 6 mm thickness.

After the 1st layer is set, the slurry of cement of the 2nd layer is applied.

Besides the walls, plaster has to be done on the ceiling (lower part of the roof) also sometimes when the shuttering is opened, many holes are found at various places in the ceiling and at some places it is not found to be smooth, then a 6 mm plaster is done in the ratio of 1:3 of cement and sand, respectively. Its curing is done in the same manner as normal cement plaster.

Table 13.1: Consumption of Cement in the Cement Plaster

Thickness of Plaster	Consumption of cement (Sack)
20 mm thick (1:4) single coat	0.18 per square metre
20 mm thick (1:5) single coat	0.14 per square metre
20 mm thick (1:3) single coat	0.25 per square metre
20 mm thick (1:6) single coat	0.133 per square metre
12 mm thick (1:4) single coat	0.11 per square metre
12 mm thick (1:5) single coat	0.10 per square metre
12 mm thick (1:3) single coat	0.15 per square metre
12 mm thick (1:6) single coat	0.103 per square metre
6 mm thick (1:3) single coat	0.081 per square metre
6 mm thick (1:4) single coat	0.055 per square metre
20 mm thick (1:4) double coat (15 mm + 5 mm)	0.19 per square metre

Table 13.2: Required amount of material for plaster of each per 100 sq meter

Thickn ess (mm)	Mix 1:2		Mix 1:3		Mix 1:4		Mix 1:5		Mix 1:6	
	Sack of cement (Number)	Sand (cubic metre)	Sack of cement (Number)	Sand (cubic metre)	Sack of cement (Number)	Sand (cubic metre)	Sack of cement (Number)	Sand (cubic metre)	Sack of cement (Number)	Sand (cubic metre)
10	14-0	0-88	9-7	1-0	7-5	1-035	6-45	0-974	5-4	1-09
12	19-6	1-37	14-7	1-54	10-95	1-53	8-92	1-51	7-2	1-51
15	23-4	1-64	17-55	1-84	13-0	1-83	10-7	1-81	8-6	1-81
18	26-9	1-80	19-3	2-01	15-06	2-10	12-9	2-18	10-76	2-25
20	30-5	2-13	22-85	2-40	17-0	2-38	13-9	2-36	11-20	2-35

13.4 PAINTING THROUGH LIME

Lime, which comes in the form of blocks, is converted in to powder form by spraying it on a solid (pucca) floor and spraying water on it. This process is called slaking or extinguishing. Later on more water is mixed into it so that it becomes ready in the form of a slurry, which can be painted on walls through brushes. In order to make its grasping strong, 5 kg of adhesive is added in 4 cubic meter of lime. Walls are cleared completely and then painted with brush. Generally three coats are done.

For payment, it is calculated on the basis of area which is equal to length \times width. It is up to two decimal points only.

13.5 COLOUR WASHING

For colour wash, the first coat, which is called priming coat is of lime. Then the required colour is mixed with lime for doing the second coat.

13.6 DRY DISTEMPER

One kg distemper of any good brand and 0.6 litre of water is mixed in ratio for about 3 minutes. It will be better if this solution is kept overnight and then is taken for use. In order to maintain the same colour throughout the wall, it is necessary that every time you should shake the solution before dipping the brush. Thus its consistency as well as the colour can be maintained.

Only that quantity of distemper should be mixed with water, which is likely to be consumed in day.

13.6.1 Making the surface ready

The surface on which distemper is to be done, is first cleaned with sand paper and made smooth as far as possible.

After the plaster gets dried up on the wall for minimum 60 days, only then distemper is to be done. First coat of lime is done on the plastered surface and after that 2 coats of distemper is applied.

For doing the distemper on old surfaces, first the surface is cleaned thoroughly and small pits are filled with plaster of paris mixed with the distemper. Once the wall is made smooth with sand paper then only the distemper is applied.

13.7 OIL BOUND DISTEMPER

Cement Primer coat is applied before doing oil bound distemper and all the process of smoothening of the surface is to be done in the same way as dry distemper.

Cement Paint: Cement paint is done only on the outer walls and not on the walls which are already painted.

13.8 MATERIALS

All materials used for paint should be of standard companies.

Painting Brush

Different size of brushes are used for different applications. For example 7.5 to 10 cm brushes for doors, windows etc. 5 cm brushes for grills and railings and 10 to 15 cm brushes are used for walls.

Maintenance of Brushes

After using brushes these are to be washed thoroughly in Terpentine oil and then kept aside. if the brushes are kept without washing, then they can not be used again.

Before using new brushes, they should be washed first in soap water and then in clean water and then dried. Before starting the painting work, rest of the jobs should be finished. Rooms are cleaned completely and then painting work should start. Painting work should not be done in the rainy season or in extreme humidity. The best season for painting is summer season.

Making the surface ready

Before painting, the surface should be cleaned thoroughly, so that any type of dust or any other material or loose particles are not deposited on the surface which is to be painted. Sand paper is used for cleaning purpose. Paint is poured from big drums to small containers. Every time paint is stirred well before

taking the paint through brush so that the texture of the paint remains the same.

While painting, brush is moved from top to bottom and then from right to left and in the end the brush is slowly moved after bringing it from right to left or from left to right giving light pressure on it.

The process so adopted is called one coat and when it gets dried, the same process is repeated which is called second coat. All the work is to be inspected at the site by the site engineer from time to time.

Painting is also done through spray machines. In that case the paint is made thin by mixing thinner into it. The surface should be dried before spray.

The putti which is applied on the doors and windows in order to give support to the glasses, is also painted with this paint colour. But remember that the stains of paint should not be seen on the glass.

Generally one coat is done on old works and two coats are done on new works.

13.9 PRECAUTIONS

The paint labourers should be warned that they should keep a net on the face while painting and wear rubber gloves in their hands so that they can save themselves from becoming ill.

13.10 MEASUREMENT OF PAINT

Measurement of paint is done in square meter upto two decimal points. Straight measurements are multiplied with their multipliers according to those given in the table below, and then the area for payment is calculated. (See table 13.3). While taking measurement only length and width are measured and not the curves. Measurement of collapsible gate is done by taking the length and width of that place where the gate is fixed, without opening it fully, other measurements are done in the same manner.

Parts of doors and windows are measured in straight and not in curve and these are measured along with the frame.

For collapsible gate, it is opened fully and measured from outside. No measurement is taken separately for any channel etc. similarly if there is any hood or cover is fitted on the top then separate measurement is taken for that.

For the doors or roofs (cement or iron) made of piped sheets, measurement is taken in straight line and not in circular curve.

Moulding or hand railing is measured in curve.

In the case of Truss, girders etc, measurement is made in terms of length × breadth which will be in square metre. No payment is made for any extra things.

Painting of Rain water pipes or any other such type of pipes is done in running metres. Clamps are included in this.

Painting of wall are done with exact measurements.

Chimneys or scaffoldings are measured separately. All measurements are done upto one centimeter.

In order to calculate the area painted or different surfaces, the following table should be consulted. Complete area is calculated after multiplying it with the multiplier given on the right side of the table.

Table 13.3: Multiplier for the paint measurements

Sl. No.	Description	Multiplier
1.	Doors and windows made of frames or bracings or panels	1.125 (for each surface)
2.	Battened Doors windows	1.125 (for each surface)
3.	Flush doors (Flat doors)	1 (for each surface)
4.	Doors/windows of panels and glass	1 (for each surface)
5.	Doors/windows of glass or net	0.5 (for each surface)
Doors and windows made of iron		
6.	Doors and windows made of plain sheet	1.125 (for each side)
7.	All the glasses or doors/windows of net	0.5 (for each side)
8.	Some portion panelled and some portion of glass	1 (for each side)
9.	Doors or windows made of piped sheet	1.25 (for each side)
10.	Collapsible doors	1.50 (for each side)
11.	Rolling shutters	1.25 (for each side)
12.	Fencing or doors – wooden/iron	1 (for entire painting)
13.	For roof made of piped sheet	1.14 (for each side)
14.	Roof made of cemented piped sheets	1.20 (for each side)
15.	Net doors – for painting including the net	(for each side)

13.11 PAINTING WORK ON WOOD

A painting coat is applied first on the wooden surface. Now a days it comes ready made, otherwise it can also be made at the site. For this red lead, white lead and double boiled linseed oil is mixed in the ratio of 0.70 Kg per liter. New or old sand paper is used for rubbing the wooden surface, cleaning the dust with a clean cloth and then the primer is applied. After this the paint to be used should be of standard company and of I.S.I. marked. Second coat is applied only after the first coat becomes dry. Now a days quality enamel paint is made thin by mixing thinner into it and then it is applied through spray gun, like it is done on the cars and other vehicles.

13.12 PAINTING ON IRON STEEL

Just like the wooden work, a primer coat is initially applied on the iron/steel surface. Normally it comes ready made from the market. It is also made by mixing red lead and raw linseed oil in the ratio of 2.80 kg/litre with the turpentine oil and is made ready at the site with thin consistency. After primer coat, any type of paint, can be applied but it should be of good company. While painting the iron/steel surface, it should be kept in mind that before starting the painting, the surface which is already cleaned, it cleaned again with waste cotton or clothes, before being painted because there is oxygen in the air which reacts with iron and an iron oxide layer gets deposited on the iron surface in a very short time, which is known as rust as the time passes.

13.13 PAINTING ON THE PLASTERED SURFACE

Now a days plastic or oil bound distemper is done on the plastered walls, therefore it is necessary that the surface should be clean and clear, smooth, straight and plain. For this plaster of paris is done on the walls, so that the ups and downs on the surface can be removed or hidden. Then following process is adopted after the last coat of paint.

Plaster of paris surface is rubbed with sand paper and then a primer coat made of cement is applied. Then a putti made of mixing local enamel and chalk powder is applied and made smooth by a thin iron plate, and then the surface is cleared

by rubbing and after this distemper or plastic paint is applied on the surface which is made ready.

13.14 POLISH ON WOOD

The surface is first cleaned with thin and then with thick sand paper and then a coat is applied by mixing chalk powder and colour. After filling putti and then again sand paper is used. This sequence is repeated for 2-3 times. When the surface becomes smooth completely, a pad is made by folding a very thin cotton cloth and then first coat is applied by dipping the pad in the polish solution.

After drying, fine sand paper is used and then again the layer of polish is applied with the help of the pad. In the second and third phase, final coat of polish is applied and left for drying. It should be remembered while applying the coats of paint or polish that dust should not come on the surface from the surrounding area. Otherwise, dust particles will be deposited on the surface along with the drying of the polish and the labour along with the material will be wasted and this will cause monetary loss. If walls are to be painted with plastic paint, then remember that putti made of oil should never be applied on the surface below that.

13.15 VARNISHING

The wooden surface is first cleaned and if there are any holes, then a thin layer of gum is applied on these and wooden dust is applied over this to fill these holes. When this becomes dry, thin sand paper is used for rubbing this and then the first layer of varnish is applied. When first layer becomes dry then second layer of varnish is applied.

13.16 SPIRIT POLISH

Clean and clear sealing wax (Lac) particles which are available in light yellow and orange colour, are mixed with spirit. The ratio of mixing these two is 140 gram sealing wax (Lac) particles is to one litre spirit.

The process of applying

Wooden surface is first painted with a putti made by mixing chalk powder and spirit or the ready made putti is also used. Then the surface is smoothed by rubbing it through sand paper. After this, as told earlier, a pad is made of cotton cloth and polish is applied on the wooden surface through this pad. After 2-3 coats, the pad is dipped in only spirit and then last finishing touch is applied with loose hands.

For removing old paint, ready made paint removers are available in the market.

Caustic soda is also used for removing paint. It is mixed with water in the ratio of 1 : 48. While using caustic soda, it must be remembered that it should not touch human body otherwise it may burn the body and becomes very painful.

The process of measurement of painted and polished surface is already given.

13.17 WHAT HAVE YOU LEARNT

- What is the normal thickness of plaster?
- What precautions must be taken while doing the plaster?
- What is to be done for making thick plaster?
- What is the process of painting on wood/iron?
- What are the main features for different types of distempering inside and outside the building?

13.18 TERMINAL QUESTIONS

1. What arrangement is made during brickwork which is helpful for doing plaster?
 2. What do you understand by the term single coat in painting or distempering?
 3. What is the difference between the process of measurement of the finishing jobs done on the walls and openings (Doors/windows)?
 4. What is the process of removing old paint?
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