Notes from *WALL PLASTER: ITS INGREDIENTS, PREPARATION, AND PROPERTIES*

1. Any clean, drinkable water will suffice. Sea water, sulphur water, or other water that is high in salts will not work.

2. The scratch coat is 1 volume of lime to $1\frac{1}{2}$ volumes of sand or 1 volume of gypsum to 2 volumes of sand. In either case, fibre should not exceed 3 bushels per cubic yard of sand.

3. The brown coat is 1 volume of lime or gypsum to 3 volumes of sand. In either case, fibre should not exceed $1\frac{1}{2}$ bushels per cubic yard of sand.

4. In general, volumetric measurements are preferred over mass measurements for plaster composition as contractors find volume measurements more convenient.

5. One volume of lime means one volume of either lime putty or dry hydrated lime.

6. Lime putty is composed of either slaked quicklime in excess water, or of approximately 1 kg of hydrated lime powder to 1 L (1 kg) of water.

7. Building code states that sharp sand is required, but round-grained sand can also produce satisfactory plaster.

8. Fibres are used to prevent droppings of keys on the rear side of lathing while plaster is wet (not to help the plaster withstand cracking after it is dried, though this does happen as well). The origin (animal or vegetable) of the fibres makes little difference.

9. Fibres may only be mixed with plaster shortly before it is to be applied. Fibres should not be left in liquid lime plaster for extended periods of time as the caustic lime putty will destroy the structure of the fibre, resulting in poorly formed keys and consequent future plaster failure.

10. It is safer to use a little too much water than not enough sand to achieve the correct consistency and workability of plaster. The slight sacrifice of strength will not make much difference, but shrinkage will cause cracks that are immediately noticable.

11. The finish coat needs to be trowelled just as it begins to set. Trowelling too early will not suffice as the cementitious material will continue to shrink after trowelling and cracks will form. Trowelling too late is also of no use as the cementitious material will be too rigid to yield to the trowel, so the cracks that have formed will not be fixable.

12. A brown coat richer than the adjacent scratch coat will not only exhibit considerable shrinkage, but it may pull the scratch coat off the lath.

13. It is better to use a finish coat comprised of only cementitious material so that it can shrink to its fullest without the presence of sand, though sometimes fine white sand or marble dust is used.

14. The finish coat has more tendency to crack as it is composed of purely cementitious material. To avoid this it must be (i) trowlled at exactly the proper time, and (ii) as thin as possible. A thin finish coat means that cracks that form are more likely to be small in size and large in quantity rather than the opposite. Large cracks in thick plaster can be trowelled but only the surface will be remedied. Small cracks in thin plaster can be completely closed by trowelling at the right time.

15. A dry brown coat sucks the mixing water out of the finish coat very quickly. This is desirable because it produces maximum shrinkage in a short time, and when the cracks which this shrinkage would cause are prevented by trowelling at the proper time, no further difficulty is to be expected.

16. The scratch coat should be applied $\frac{1}{4}$ inches thick with **v**-shaped scratches $\frac{1}{8}$ inches deep by 1 inch apart.

17. The scratch coat shall be permitted to harden until pressure of the thumb is not sufficient to break down the edges of the scratches. It is then ready to receive the brown coat.

18. The brown coat shall be thoroughly trowelled, to push the material into the depressions in the scratch coat. It shall then be built up to the desired thickness, and rodded to produce a plane true surface, flush with the grounds. It shall then be darbied to take out the irregularities left by the rod. Finally it shall be floated to take out the last of the irregularities and produce sufficient porosity to give the proper suction for the application of the finish coat. It shall be permitted to set until thoroughly hard and dry, before applying the finish coat, or any other decorative finish.

19. The finish coat shall be spread as thin as possible without having the under coat show through, and there shall be no noticeable joints or ridges. After the designated area has been covered, the plaster is closely watched, looking along its surface toward the light. At a certain time, depending on the amount of gypsum used, the glaze due to the water on the surface will suddenly disappear, the surface becoming dull as the gypsum begins to crystal lize. This is the proper time to trowel the finish. The plasterer brushes the surface with water, holding the brush in one hand and the trowel in the other, in order that the trowel may follow the brush immediately. It is essential that the plasterer use all the pressure he can apply to the trowel during this operation, and that the whole surface be gone over as rapidly as possible, without interruption.