

9.0 INTERIOR FEATURES

ARTICLES

NOTES

9.1.0 INTRODUCTION

Plaster ceiling systems generally include a lath or metal base, which keys (locks) the plaster to the substrate, several coarse scratch coats, and a fine finish coat. In some cases, plaster is applied directly to concrete surfaces.

Plaster types used at Fort Lewis should be analyzed as part of a future program if interior plaster repair is anticipated.

Original plaster surfaces should be maintained in major public spaces such as entry foyers; severely deteriorated plaster in these areas should be repaired by replastering. Seriously deteriorated plaster in less accessible areas may be replaced using a sheetrock system. In the latter case, care should be taken to maintain the original surface thickness as closely as possible. Junctions with walls and mouldings should be carefully detailed.

Both lime and gypsum plasters are susceptible to the effects of moisture and chemical actions common to masonry; they are also brittle in their finished state and subject to cracking from building settlement and mechanical damage. They will last indefinitely if properly maintained and repaired.

Large plaster jobs or skim surface coats are best done by a professional plasterer.

9.1.1 TYPICAL REPAIRS

9.1.1.1 GENERAL

Plaster failure generally results from either moisture conditions or movement of the building.

Major building settlement either at foundations or from sagging joists can cause the lath key to break. This allows separation from the lath and buckling or cracking in the plaster.

In many cases, particularly if keying has been damaged, it is better to resurface a large area than to try to patch obvious cracks. Attempts at spot correction are usually more costly and less satisfactory than removing the plaster and installing a new plaster (or in some cases sheetrock) system.

9.1.1.2 Efflorescence (white powdery fluff on surface of plaster).

CAUSE

Moisture penetrating plaster layer from interior wall cavity. May be a result of leaking plumbing, leaking roof, or poorly maintained or deteriorated gutter systems.

REPAIR

Make sure that the cause of the moisture has been remedied.

Remove all surface deposits on the plaster with a dry bristle brush, and wipe all affected areas with a damp cloth.

Allow to dry and repaint surface.

9.1.1.3 Hairline or check cracks in plaster surface (sometimes not evident if paint surface has not cracked).

CAUSE

General differential shrinkage of plaster material or limited settling of the substrate.

REPAIR

Chip away dry chips where finish coat has separated from basecoats.

Bevel the edges of the finish plaster around the perimeter of each area and drybrush all surfaces.

Apply a bonding agent to the exposed basecoat and the edges of the cut area.

Allow agent to dry thoroughly following manufacturer's recommendations.

Apply a finish coat of patching plaster, pressing tightly against the backing coat to make a good bond.

Immediately apply a second coat to bring area up to the level of the undisturbed finish coat.

When the patch has stiffened, imperfections or trowel marks may be removed by light trowel pressure.

Water trowel the surface if a dense polished finish is required, or float the surface for a textured finish.

Finish should match the original adjacent surface.

9.1.1.4 Large cracks or unkeyed and buckled areas.

CAUSE

Most often this is a result of sagging or shifts in the major structural systems.

Make sure that the system is sound and stabilized before effecting repairs.

REPAIR

Before beginning corrective measures, cut the plaster in the area of one crack through its entire thickness to the backing material.

Verify the condition of the backing material and establish the type and thickness of the original plaster.

Rake and undercut the plaster for its full thickness making the cut sufficiently wide (at least double the width for cracks).

Drybrush all loose plaster from the area.

Mix and apply basecoats of patching plaster.

For masonry backing, apply double backing coats of scratch and browncoat layers composed of one cubic foot of sand to 100 pounds of wood-fibered gypsum plaster.

True surface, but leave rough to accept finish coat.

For wood lath backing, apply a scratch coat of wood-fibered gypsum plaster followed by a brown coat with one cubic foot of sand per 100 pounds of plaster.

Press all scratch coats firmly to make sure that the material will form good keys on the backside.

Apply a finish coat of either a lime-putty gypsum trowel finish or, if the surface is extremely hard, a Keene's cement-lime putty mix.

Apply finish coat to a partially dry basecoat or to a thoroughly dry basecoat that has been evenly wetted with a light water spray.
Water should not be excessive.

9.1.2 MAINTENANCE RECOMMENDATIONS

General maintenance to sound plaster is relatively minimal. Surfaces should be kept painted and clean, and any evident moisture problems should be corrected immediately.

NOTES

9.2.0 INTRODUCTION

Stairs are among the most heavily used building elements. Historically, wood stair construction has evolved to a system of well detailed interrelated and interlocking parts which resist much of the movement stairs are subject to.

Stair treads usually sit upon three or more notched stringers which are anchored to the building framing. The sides of the treads are often inserted into notched skirting, and the tread is also notched into the riser which is notched into the next tread. The whole assembly is shimmed and leveled.

The stair balusters, railing and newel are equally interrelated to resist stress, and the complete system, when built by a skilled craftsman, fits together like a snug jigsaw puzzle.

Stairs are troublesome, however, because their heavy use, coupled with building settlement and wood shrinkage and warping, result in the loosening of their joints and occasionally the dislodging of shimming, wedges and trim.

Stair design is an important character defining element of historic buildings. Stair components should be protected and maintained.

9.2.1 TYPICAL REPAIRS

9.2.1.1 Stair is not level.

CAUSE

Building settlement, wood shrinkage.

REPAIR

Leveling will most likely require access to framing.

Plaster ceiling will need to be removed and the structure should be checked by a structural engineer.

If framing is not significantly moved out of place, stair components may be leveled on the underside with wedges and shims. Maintain a consistent height between steps.

This work will require several trades including framing, finish carpentry, plaster and painting.

Replace all removed trim.

9.2.1.2 Loose newel.

CAUSE

Stress, poor construction.

REPAIR

Remove top cap of newel. Tighten rod. Replace cap.

If no threaded rod, install from inside newel dado to structure below. (See illustration). Repair finishes.

9.2.1.3 Loose balustrade panels.

CAUSE

Stress.

REPAIR

Remove face trim at stairs. Resecure panels to framing on tread. Shim, wedge and screw if excessive movement exists.

If baluster is doweled, inject glue around void.

Secure baluster tops to handrail underside by gluing and toenailing up.

Do not face nail from top of handrail.

Wood screws will add more strength than nails. Countersink and plug or fill with wood filler. Sand smooth.

Replace all trim.

9.2.1.4 Squeaks.

CAUSE

Wood shrinkage.

REPAIR

Tamp small glue coated wedges between riser and tread.

Cut off exposed edges with knife.

9.2.2 MAINTENANCE RECOMMENDATIONS

- A. Tightening loose elements as soon as they appear is essential to maintaining the overall integrity of a stair.
- B. Worn risers can be a safety problem. Replace worn finish, especially on the noses of the treads, as soon as it looks thin. This will protect the wood from wear.