

Maintaining the integrity and beauty of historic structures

Pretty & Plastered

□ The greatest Art in the world was done for its place and in its place.”

- Ruskin



- 4 Archdale St.

- Gothic Revival

- Formal dedication was not achieved until 1787 although construction began in 1772 (work stopped in 1776 with the onset of the Revolutionary War).

- Re-opening occurred on November 21st of 2010.

From the Beginning: Plaster

- The very first plasters were earthen: clay, sand, and straw mixtures that didn't require any furnaces but baked with the sun.
- These earthen plasters such as cod and daub are still the most prevalent in use today.
- The calcium plasters of gypsum and lime were most likely discovered during the process of pottery making and crude kiln firing.
- The plaster compositions as we know today are from the 18th and 19th centuries.
- Developed in France and Italy, the art of the plasterer moved across Europe throughout England, Ireland, and Scotland and over into the States.

American Plaster

- Lime (Ca(OH)_2 a hydroxide of Calcium)
 - High pH = High alkalinity (mold resistant)
 - Most prevalent up until early 1900's.
 - Composed of lime, aggregates, fibers, and water.
 - Displays a significant shrinkage factor thus can not be built in great thickness.
 - Chemical reaction occurs with exposure to air.
 - Extremely long set time: cure/recarbonizing.
 - Breathes with the interior environment, thus holds water well.
 - Scratch, Brown, and Finish coat
- Gypsum (CaSO_4 : a sulphate of Calcium)
 - Almost pH neutral
 - More popular from early 1900's onward.
 - Composed of burnt sedimentary rock and water.
 - Maintains most of the water in its crystalline form.
 - Chemical reaction occurs with the introduction of water.
 - Quicker set time made the gypsum plasters more desirable.
 - Can not withstand exposure to moisture.
 - Scratch, Brown, and Finish coat

American Plaster

- Veneer Plasters
- Caen stone
- Lime washes
- Venetian Plasters
- “Marmorino”
- Scagliola
- Ornamental Plaster



Analyzing the Issues:

- Structural Problems
- Improper Curing
- Moisture Issues
- Poor craftsmanship
- Losing the keys
- Failing lath
- Improper Maintenance (Remodeling efforts)
- Issues with plaster composition
- Mis-information



Overloading:

- Stresses throughout a house as well as settling that naturally occurs over time will cause cracking.
- Structures built on clay soils and other highly expansive soils are especially susceptible.
- Later additions of windows, doors, and additional framing causes shifts in weight balances and if not properly installed will force excess pressure in the wrong areas, causing the plaster wall or ceiling to crack.



Cure Time:

- It is crucial to the success of a plastering project that the correct interior environment is established and maintained.
- Air circulation
- Low to Moderate Humidity
- 55 – 75 degrees Fahrenheit
- Plastering takes patience, the most common mistake is attempting to rush the project and not allowing for a proper cure.

Moisture Damage:

- Roof Leaks
- Exterior back-splash
- Plumbing leaks
- Must always go to the source of the issue, never simply repair the failing plaster.
- Salts from masonry substrates will carry once in contact with water, causing efflorescence and bubbling.



Poor Craftsmanship

- It is a must to achieve a properly proportioned mix: too much sand equals a weak and crumbling plaster. Not enough sand equals a thin plaster that will not build up to sufficient thickness and stand up to stresses and pressures within the wall.
- Base coat and finish coat compatibility: differing expansion and contraction rates.
- Improper Application Techniques: too thick, too thin, too dry a substrate.

Plaster Key

- Plaster walls and ceilings become dangerous when they lose their key.
- Causes: shifts, pressure stresses, failing plaster, movement in lath.
- The wall and/or ceiling will fail and sag when the key has been lost. Gravity will eventually pull the plaster down.
- Failing lath becomes an issue as well and will cause the plaster to lose its key. If horizontal cracking is occurring, most times this is due to the failure of wood lath.



The Preservation of Historic Architecture: The US Governments Official Guidelines for preserving Historic Homes -

“Although property owner cannot duplicate the years of accumulated knowledge and craft skills of a professional plasterer, there are materials that can be used for do-it-yourself repairs. For example, fine cracks can be filled with an all-purpose drywall joint compound. For bridging larger cracks using fiberglass tape, a homeowner can use a “quick-setting” joint compound. This compound has a fast drying time- 60,90, or 120 minutes. Quick setting joint compound dries b/c of a chemical reaction, not b/c of water evaporation. It shrinks less than all-purpose joint compound and has much the same workability as ready-mix base-coat plaster. However, because quick-set joint compounds are hard to sand, they should only be used to bed tape or to fill large holes. All-purpose joint compound should be used as the final coat prior to sanding.”

Take your time

- Many times the issues with “failing” plaster is simply cosmetic. Minor surface issues can easily be resolved.
- Always know which material is most compatible to use before starting. And always understand just what it is you are attempting to repair. (Paint issues or plaster issues?)
- Never use drywall mud/sheetrock mud/joint compound.
- Never sand.

Restoration Process

- Rebuilding wood lath
- Repairing holes
- Re-attaching failing plaster
- Mapline cracks
- Hairline cracks
- Failing paint
- Hawk and Trowel
- Plaster Weld
- Fiberglass Mesh Tape
- Plaster Washers and Screws

Building Back Wood Lath



Moisture is key



Repairing Holes



Scratch Coat



Brown Coat



Skim coat Plaster



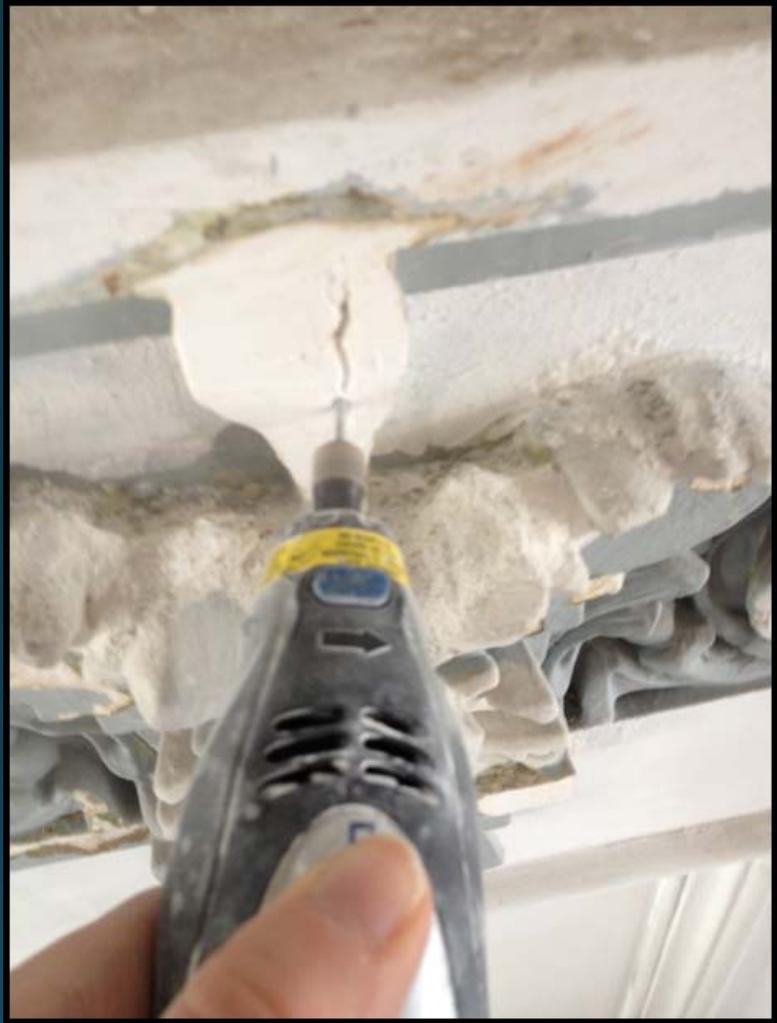




Ornamental Plaster Repair:

- Columbia City Hall Council Chambers



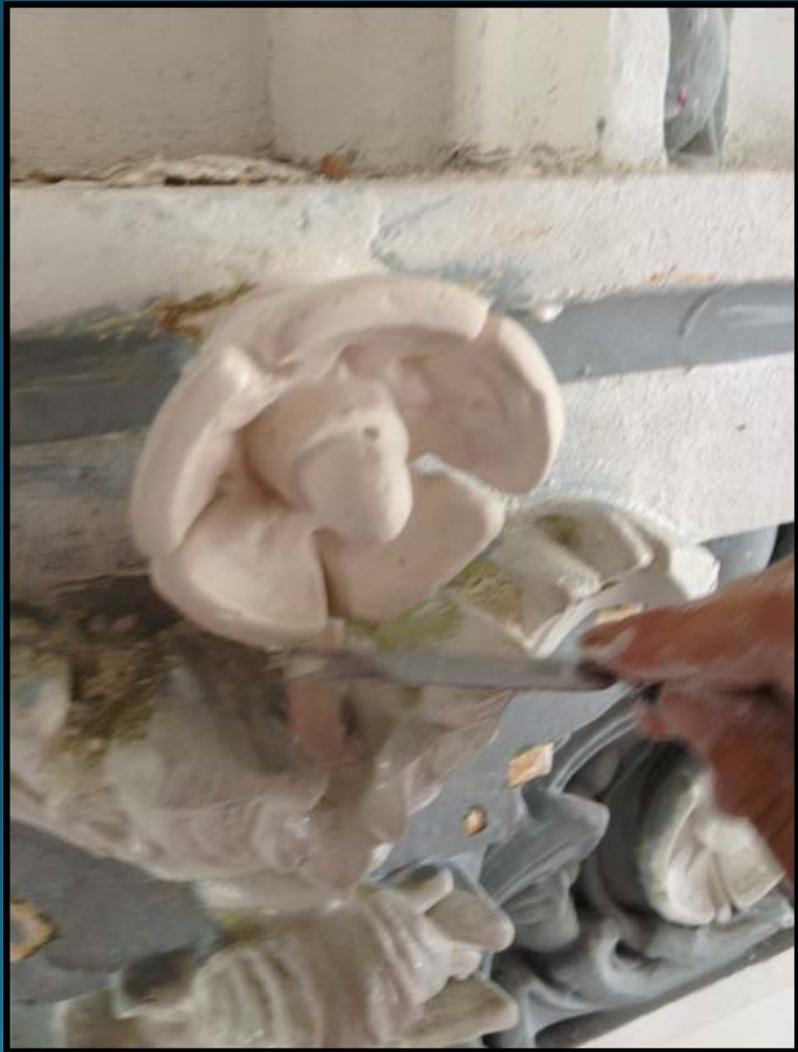


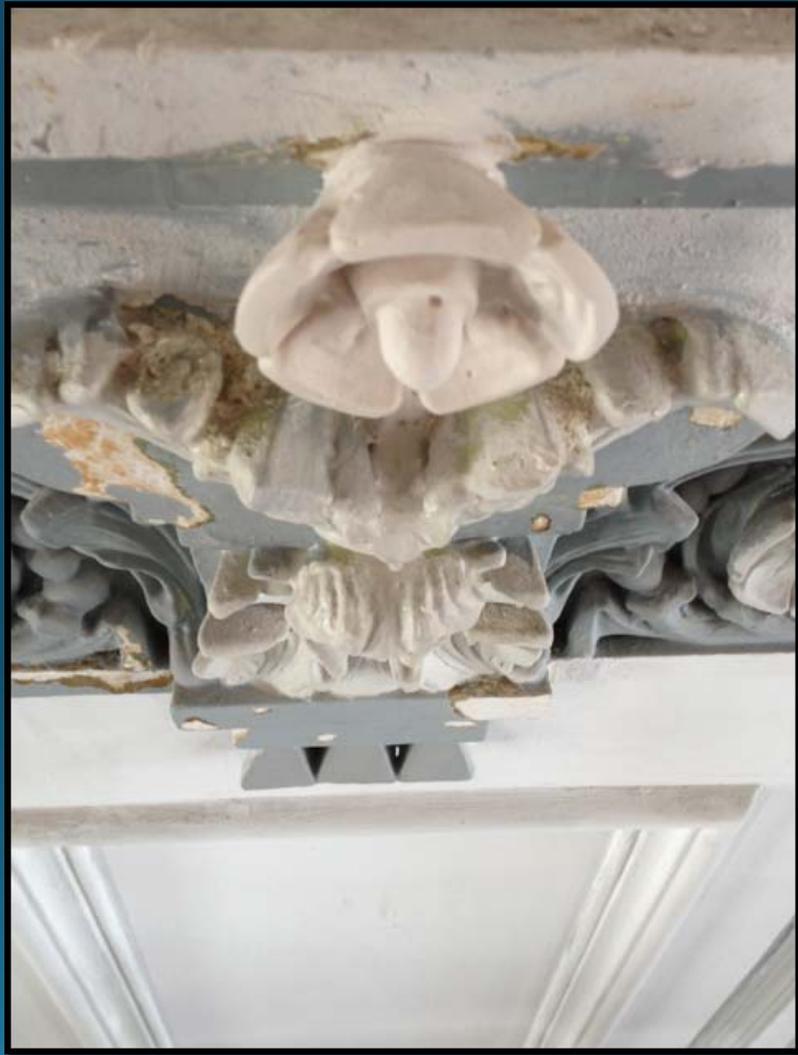












Bench Run Mouldings

