

# Historic Cincinnati Homes: Waterproofing Without Losing Character

Cincinnati's architectural heritage includes thousands of homes built before modern waterproofing standards existed. From Over-the-Rhine's Italianate rowhouses to the grand Victorian mansions of Clifton and Mount Auburn, these historic structures present unique waterproofing challenges that require balancing moisture management with preservation of architectural character. Understanding how historic foundations differ from modern construction, respecting original design intentions, and selecting appropriate waterproofing approaches helps homeowners protect these irreplaceable buildings while maintaining their historic integrity.

## Understanding Historic Foundation Construction

Historic Cincinnati homes were built using materials and methods dramatically different from modern construction. Understanding these differences is essential for developing effective waterproofing strategies that work with, rather than against, original designs.

Stone foundations predominated in Cincinnati's oldest homes, particularly those built before 1880. Local limestone quarried from area hillsides provided readily available foundation material. Stonemasons laid these foundations using lime mortar, a material that's softer and more porous than modern Portland cement. This porosity allowed foundations to breathe, managing moisture through evaporation rather than complete exclusion.

Brick foundations became common in Cincinnati homes built between 1880 and 1920. Locally manufactured brick provided uniform, easier-to-work materials than fieldstone. These brick foundations also used lime mortars initially, transitioning to harder Portland cement mortars in later years. Multiple-wythe construction, typically three to four bricks thick, created substantial walls that managed moisture through mass and permeability.

Basement floor construction varied significantly from modern practice. Many historic Cincinnati homes originally had dirt floors in basements or root cellars. These spaces weren't intended as living areas but rather as storage for coal, food preservation, and utility functions. The dirt floors allowed moisture to evaporate naturally while providing adequate dryness for intended uses.

When concrete floors were added, often during the 1920s through 1950s, they were typically thin slabs poured directly on dirt without vapor barriers. These floors allow moisture transmission from underlying soil through concrete pores. Modern expectations of dry, finished basement spaces conflict with these original construction methods.

Foundation drainage in historic homes, when it existed at all, consisted of clay tile perimeter drains. These tiles, typically four to six inches in diameter, were laid end-to-end without modern waterproofing or connection methods. Gaps between tiles allowed water collection while also permitting root intrusion and sediment

accumulation. Many of these historic drainage tiles have collapsed or filled with sediment over decades of service.

## **Respecting Historic Design Philosophy**

Historic building design incorporated different moisture management philosophies than modern practice. Understanding and respecting these approaches leads to more successful and sympathetic waterproofing solutions.

Ventilation and evaporation formed the foundation of historic moisture management. Rather than attempting to exclude all moisture, historic buildings managed it through air movement and evaporative drying. Foundation vents, high ceilings, and strategic window placement promoted air circulation that removed moisture before problems developed.

Building mass provided thermal buffering and moisture management capacity. Thick masonry walls absorbed moisture during humid periods and released it during drier conditions. This hygroscopic behavior moderated interior conditions without mechanical systems. Modern waterproofing that completely seals foundations can trap moisture within wall mass, creating different problems than those it solves.

Sacrificial materials in historic construction accepted that some deterioration was inevitable and planned for periodic renewal. Exterior lime washes, soft mortars, and wooden elements were designed for periodic replacement rather than permanent durability. This philosophy conflicts with modern expectations of maintenance-free construction.

Adapting historic buildings for modern comfort expectations requires sensitivity to original design intentions. Completely waterproofing a historic foundation might create moisture trapping that damages original materials. Finding the balance between modern performance standards and historic preservation principles requires understanding both domains.

## **Appropriate Waterproofing Materials and Methods**

Selecting waterproofing approaches for historic Cincinnati homes requires matching modern solutions to historic construction methods and materials.

Lime mortars should be preserved and matched when repointing historic masonry foundations. Modern Portland cement mortars are harder than historic bricks and stones, creating stress concentration that can spall or crack original materials. Lime mortars, while softer and more porous, flex with building movement and allow moisture evaporation. Specialized suppliers provide period-appropriate lime mortars formulated to match original construction.

Repointing itself demands careful technique. Never use power tools to remove historic mortar, as vibration can damage surrounding masonry. Hand chisels and brushes, while labor-intensive, protect original materials.

Repointing depth should reach at least twice the joint width to ensure good bond. New mortar should be slightly softer than surrounding masonry to serve as the sacrificial element in future deterioration.

Interior waterproofing approaches generally prove more sympathetic to historic structures than exterior methods. Interior drainage systems avoid disrupting exterior architectural features while providing effective moisture management. Interior applications don't require removing historic exterior materials or disturbing period landscaping.

Vapor barrier selection requires care in historic applications. Modern plastic sheeting creates impermeable barriers that trap moisture within historic masonry. Consider breathable membranes that manage moisture through selective permeability rather than complete blocking. These products, originally developed for European restoration work, allow vapor transmission while preventing liquid water intrusion.

Drainage improvements should preserve or enhance historic drainage systems rather than wholesale replacement. Camera inspection of historic drainage tiles often reveals they're still functional despite age. Professional cleaning and spot repairs might restore functionality at far lower cost than complete replacement. When replacement is necessary, route new drains following original patterns to maintain foundation support characteristics.

Foundation waterproofing compounds must be compatible with historic materials. Many modern waterproofing products contain Portland cement or acrylics incompatible with lime mortar foundations. Mineral-based waterproofing compounds developed for historic preservation work breathe like historic materials while providing modern water resistance. These specialized products cost more than standard waterproofing but prevent damage to irreplaceable historic fabric.

## **Special Considerations for Different Historic Periods**

Cincinnati homes from different eras present unique waterproofing challenges reflecting the building practices and materials of their times.

Pre-Civil War homes, roughly pre-1865, typically feature the thickest stone or brick foundations built when labor was plentiful and material costs relatively low. These substantial foundations generally perform well if original drainage remains functional and mortar is maintained. However, their solid mass can trap moisture if improperly sealed. Waterproofing approaches should maintain breathability while managing water intrusion.

Post-Civil War Victorian homes, built roughly 1865 to 1900, often feature decorative foundation work including belt courses, water tables, and detailed masonry. Waterproofing methods must preserve these architectural details. Interior drainage systems that leave exteriors intact prove particularly appropriate for these elaborate foundations. Avoid exterior excavation that might damage ornamental stonework or disrupt period landscapes.

Turn-of-century homes from 1900 to 1920 often incorporated early concrete in foundation construction, sometimes in combination with brick or stone. These hybrid foundations require careful assessment since

different materials respond differently to waterproofing treatments. The interface between materials often proves most vulnerable to water intrusion and needs targeted attention.

Early twentieth-century homes from the 1920s and 1930s increasingly used poured concrete foundations. While more similar to modern construction, these early concrete foundations often lack modern waterproofing and have had decades to develop cracks and deterioration. Standard modern waterproofing approaches generally work well for these foundations, though preservationists might argue that homes from this period have historic significance warranting special consideration.

## **Working Within Preservation Guidelines**

Homeowners of properties in historic districts face additional regulatory considerations when planning waterproofing projects.

Local historic district regulations in Over-the-Rhine, the Prospect Hill Historic District, and other designated areas regulate exterior modifications. While basement waterproofing often escapes review since it's not visible from public rights-of-way, excavation work, exterior waterproofing, or drainage modifications affecting historic landscapes might require approval. Contact your local historic conservation board before beginning work affecting property exteriors.

Federal historic preservation tax credits provide financial incentives for appropriate rehabilitation of income-producing historic buildings. These credits require following the Secretary of the Interior's Standards for Rehabilitation. While most residential properties don't qualify for these credits, understanding the standards provides guidance for appropriate treatment even in non-qualifying properties.

The Secretary's Standards emphasize minimal intervention, reversibility, and distinguishing new work from old. Apply these principles to waterproofing decisions. Choose methods that preserve maximum historic fabric, could be reversed if future better solutions emerge, and don't create false historic appearances. Document your work thoroughly to inform future owners and craftspeople.

## **Balancing Historic Preservation and Practical Living**

The tension between preservation ideals and comfortable modern living requires pragmatic compromise informed by priorities and resources.

Not every historic feature warrants preservation at all costs. Dirt basement floors, while historic, serve no functional purpose for modern homeowners. Converting them to concrete slabs with appropriate vapor barriers represents a reasonable compromise between preservation and practicality. Focus preservation efforts on architecturally significant and visible elements.

Reversibility provides a useful guiding principle when preservation and practicality conflict. If a waterproofing method can be removed in the future without damaging historic fabric, it represents a better choice than

permanent alterations. Interior drainage systems generally prove more reversible than exterior excavation and waterproofing.

Hidden modifications allow modern performance without visual impact. Interior waterproofing systems, concealed sump pumps, and drainage improvements hide behind finished walls, allowing period-appropriate interior appearances while providing modern moisture management. This approach satisfies both preservation and practicality concerns.

Professional consultation proves valuable when navigating preservation and waterproofing decisions. Historic preservation architects understand both preservation principles and modern building science. Their expertise helps identify solutions respecting historic character while meeting modern performance expectations. The modest cost of professional consultation prevents expensive mistakes and ensures appropriate treatment.

## **Common Mistakes to Avoid**

Several common errors in historic home waterproofing can damage irreplaceable historic materials while failing to solve moisture problems effectively.

Never repoint historic masonry with modern Portland cement mortars. This mistake appears in countless historic buildings and causes progressive damage as hard mortar damages softer surrounding brick or stone. The damage proves expensive or impossible to reverse. Always use lime mortars formulated for historic masonry work.

Don't apply impermeable coatings to historic masonry exteriors. Products marketed as waterproofing paints or sealers often trap moisture within walls, causing accelerated deterioration. Historic masonry needs to breathe. Use only breathable waterproofing products specifically formulated for historic materials.

Avoid wholesale foundation replacement unless absolutely necessary. Even severely deteriorated historic foundations often can be stabilized and repaired. Foundation replacement destroys archaeological evidence, disrupts historic fabric throughout the building, and costs far more than targeted repairs. Replacement should be the last resort after exhausting all repair options.

Don't ignore period-appropriate drainage solutions in favor of modern systems exclusively. Historic drainage tiles might still function adequately with cleaning and spot repairs. At minimum, understand how original drainage worked before designing modern replacements. Sometimes simple repairs restore historic systems to full functionality.

Never make irreversible modifications without thoroughly documenting existing conditions. Photograph and measure everything before beginning work. These records prove invaluable if problems develop or if future owners want to understand modification history. Documentation costs little but provides tremendous value.

## **Finding Qualified Professionals**

Historic home waterproofing requires contractors who understand both modern moisture management and historic preservation principles.

Seek contractors with demonstrated historic building experience. Ask for references from other historic property owners. Visit completed projects to assess work quality and appropriateness. Contractors experienced with historic buildings understand limitations and possibilities that general contractors might miss.

Historic preservation organizations provide valuable contractor referrals. Local chapters of Preservation Cincinnati can recommend qualified professionals experienced with historic buildings. These organizations often maintain databases of contractors who've successfully completed reviewed projects in historic districts.

Interview potential contractors specifically about historic materials and methods. Ask about their experience with lime mortars, historic masonry, and preservation principles. Contractors who can't discuss these topics knowledgeably probably lack the expertise your historic home requires.

Request detailed proposals that specify materials and methods. Vague proposals suggesting "standard waterproofing" prove inadequate for historic work. Appropriate proposals detail materials compatible with historic construction and explain how methods respect historic character while achieving modern performance.

## **Long-Term Maintenance of Historic Foundations**

Historic foundations require ongoing maintenance to preserve their character and functionality over additional decades or centuries.

Annual inspections identify problems early when repairs remain manageable. Inspect for mortar deterioration, spalling brick or stone, vegetation growth, and signs of water intrusion. Addressing small problems immediately prevents them from growing into major issues requiring extensive intervention.

Maintain appropriate moisture levels in basement spaces. Historic masonry performs best with moderate humidity, typically 40 to 60 percent relative humidity. Excessive dryness can damage lime mortars and shrink wooden elements. Excessive humidity promotes deterioration and mold growth. Manage humidity through ventilation and dehumidification as needed.

Preserve and maintain historic drainage systems. Clean gutters regularly, ensure downspouts discharge properly, and maintain foundation plantings appropriately. These simple tasks prevent most water problems before they affect foundations. Historic foundations that stayed dry for decades continue performing well when original drainage remains functional.

Repoint mortar joints promptly when deterioration appears. Don't wait for extensive deterioration to address mortar problems. Early repointing using appropriate lime mortars costs far less than extensive repairs after water intrusion has damaged brick or stone. Think of repointing as routine maintenance rather than crisis response.

Document all repairs and modifications for future owners. Maintain records of what was done, when, why, and by whom. Include photographs of before, during, and after conditions. This documentation helps future owners understand their building's history and make informed decisions about future work.

Cincinnati's historic homes represent irreplaceable architectural heritage worthy of preservation for future generations. Thoughtful waterproofing that respects historic character while meeting modern performance expectations allows these buildings to remain functional, comfortable homes. By understanding historic construction, selecting appropriate materials and methods, and maintaining properties with care, today's homeowners become stewards preserving tomorrow's history.