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August 26, 2026

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c/o William Conkey
william.conkey@alexandriava.gov
Alexandria Board of Architectural Review
901 Wythe Street
Alexandria, VA 22314

By email

Re: BAR2026-00238 – OHAD-Request for alterations at 121 North Fairfax Street-September 2, 2026.

Dear Chair Scott and BAR members:

On behalf of Historic Alexandria Foundation, please accept for your review and consideration the attached Memorandum from Architectural Historian Willie Graham concerning the proposed replacement of the wooden roof of the Carlyle House with a period-inappropriate metal roofing system. Mr. Graham served for 37 years as curator of architecture at the Colonial Williamsburg Foundation — the world's largest outdoor living history museum — where he oversaw restoration and interpretation throughout the Historic Area. He is a preeminent authority on the analysis, recording, restoration, and reconstruction of 17th-, 18th-, and early 19th-century buildings.

The iconic Carlyle House is of such importance to the history of Alexandria and an anchor to the Old and Historic District that we have sought and obtained from Mr. Graham his detailed report and recommendations. This detailed memorandum, based on years of research, scholarship, and practical experience, informs our view that the proposal by NOVA parks to replace the wooden roof should not be approved. We therefore respectfully submit the report for your consideration.

Thank you for your consideration of this important report.

Respectfully submitted,

Historic Alexandria Foundation
By:

/s/ John Thorpe Richards, Jr

Member, Board of Trustees &
Advocacy Committee

cc.

William Conkey
william.conkey@alexandriava.gov

Memorandum

August 25, 2026

To: John Richards, Historic Alexandria

From: Willie Graham

Re: Proposed Replacement of the Carlyle House Roof

Subject: Historical Basis and Preservation Case for Retaining a Wood-Shingle Roof

I share the concern about the direction the Carlyle House Historic Park is considering for replacement of the roof. Based on the surviving physical evidence, the broader historical record for Virginia roofing, and what is known about the durability of properly specified traditional shingles, I believe the strongest preservation case is for replacement in wood rather than standing-seam metal. A properly designed and installed wood-shingle roof is not only the most historically defensible treatment for the Carlyle House; it can also be a practical, long-lived roof whose service life is much closer to that anticipated for metal than current discussions assume.

The central question should not be which material is easiest to maintain or which modern roofing system carries the longest nominal life expectancy. The appropriate question is: what roof covering best serves a nationally significant eighteenth-century house interpreted to the 1750s and standing within one of the country's most important historic districts? Framed that way, the evidence strongly favors wood. Moreover, because there is direct physical evidence associated with the Carlyle House itself, any proposal to substitute standing-seam metal should carry the burden of demonstrating why that evidence should be set aside.

The Existing Roof Is Already Close to an Appropriate Historic Treatment

The Carlyle House currently has a fairly well-executed round-butt wooden shingle roof painted slate gray. Several details are particularly good. Notably, the shingles are round-butt and fanned at the hips, precisely the sort of treatment expected on an eighteenth-century Virginia roof.

There are details worth reconsidering when the roof is replaced. The dormer valleys, for example, should also have been swept, and evidence from a historic shingle recovered from the house suggests that a reddish-brown or Spanish-brown paint is more appropriate than the present gray. Nevertheless, the existing installation is, in its overall appearance, a convincing recreation of an eighteenth-century covering.

My understanding is that one of the principal arguments for abandoning wood is the expectation that a new wood roof may last only about fifteen years—which I think is the life of the current installation. On the other hand, it is projected that a standing-seam metal

roof may last about seventy-five years. That comparison is misleading because it assumes the performance of an ordinary modern cedar-shingle roof. A properly specified historic wood roof, using the correct species, dimensions, grade, installation, ventilation, and maintenance regime, can reasonably be expected to last fifty years or more. In preservation terms, that places a correctly executed wood roof in the same general life-cycle discussion as metal while preserving the historically appropriate appearance and material.

The principal weakness of the existing roof is therefore not that it is wooden, but that the shingles were manufactured too thinly and is made of western red cedar. Thin western red cedar shingles simply do not provide the longevity achievable with properly made historic shingles. When I encountered roofs of this type while working at Colonial Williamsburg, they commonly failed in fifteen years or less. That experience should not be generalized into an argument that wood itself is unsuitable.

The Carlyle House Contains Direct Physical Evidence for a Wooden Roof

The argument for retaining wood is particularly strong because the Carlyle House itself contains physical evidence of an earlier wooden roof covering.

Staff discovered a wooden shingle discarded in the attic during an earlier reroofing campaign and provided it to dendrochronologist, Mick Worthington, for examination. The shingle is made of Atlantic white cedar, a highly durable regional species and one commonly used in Virginia during the eighteenth century. A single shingle is difficult to date securely by dendrochronology, and in this case particularly so because the surviving one does not retain its waney edge, or final growth ring beneath the bark. Even if its tree rings can be matched to a chronology, the analysis may establish only the last surviving growth year rather than the exact felling date. Its inability to yield a precise dendrochronological date, however, does not diminish the substantial information the shingle provides about date, material, form, fabrication, exposure, fastening, and finish.

The shingle's dimensions and form are consistent with eighteenth-century Virginia practice. It measures approximately 17¾ inches long and just under 4 inches wide, with weathering indicating an exposure of about 6 inches. Its rounded butt is equally significant. In a large sample of surviving Virginia roofing shingles, approximately 84 percent were made with round butts (see Willie Graham, ”Exterior Finishes,” in the *Chesapeake House: Architectural Investigations by Colonial Williamsburg,* ed. by Cary Carson and Carl. L. Lounsbury, 286-311). The Carlyle example therefore corresponds precisely with the dominant Virginia roofing tradition of the period.

The broader statistical evidence is even more compelling. The earliest period for which I have substantial statistical information for Virginia begins in 1796. Between 1796 and 1800, more than 98 percent of approximately 3,500 recorded roofs were covered with wood. The great majority of these examples were in towns rather than isolated rural settings, making

the evidence particularly relevant to Alexandria. Wood continued to dominate Virginia roofing for decades thereafter. It did not fall below 75 percent of recorded urban roofs until 1826-1830 and did not become a minority covering statewide until after 1860. Even in 1856-1860, metal roofing—principally tin or terne, with some copper—accounted for only about 16 percent of recorded roofs.

These figures establish the historical baseline. If Carlyle House is interpreted to the 1750s, the broader historical evidence provides little basis for treating standing-seam metal as the more probable or more appropriate roof covering. The opposite is true. Wood was overwhelmingly the normal roofing material, while widespread use of metal came considerably later.

The Fastening Evidence May Be Even More Important

Perhaps the most persuasive feature of the recovered shingle is the evidence left by its original fasteners. Although the nails themselves do not survive, their head impressions remain visible in the wood and are consistent with hand-forged rose-head nails, the overwhelming standard for eighteenth-century shingle fasteners.

This provides an important chronological clue. Alexandria adopted machine-cut nails comparatively early, and small nails—especially those used for shingles and plaster lath—were among the first applications in which cut nails offered significant economic advantages. That transition was underway around 1800 and in the first years thereafter. An early-nineteenth-century roof could still have been fastened with rose-head nails, but that probability diminished quickly in the opening decade of the 19th century as cut nail use became widespread.

Taken cumulatively, the recovered shingle presents a strong body of evidence: Atlantic white cedar, an appropriate regional roofing material; dimensions consistent with eighteenth-century Virginia practice; approximately six inches of exposure; a round butt matching the dominant documented Virginia form; and evidence of fastening with hand-forged rose-head nails. Together, these characteristics make a strong case that the surviving shingle represents an eighteenth-century roof covering and most likely the original one on the Carlyle House roof.

The Surviving Shingle Also Preserves Evidence of Historic Maintenance

The wear visible on the shingle indicates that it remained in service for a considerable period. After the exposed surface had weathered, the shingle was painted a reddish-orange or reddish-brown color, almost certainly as a maintenance treatment intended to extend its useful life. This corresponds closely with the broader Virginia evidence. Nearly 45 percent of the historic Virginia shingles I have examined or recorded were painted

either originally or later as a maintenance coating, and most of those finishes fall within the reddish-brown or Spanish-brown range.

The surviving Carlyle shingle therefore offers an unusual opportunity not merely to reproduce the general form of the historic roof, but potentially to reproduce its historic finish as well. A qualified paint analyst should examine the surviving coating microscopically to identify its original color and composition as closely as possible.

Concern has apparently been raised that painting wood shingles may itself accelerate deterioration, with the experience at Mount Vernon cited as a cautionary example. That concern is legitimate only if the wrong coating system is used. Mount Vernon's problems resulted from an inappropriate modern paint system that impeded the roof's ability to dry; subsequent reroofing work has corrected that approach. The relevant lesson is not that historic wood shingles should never be painted, but that the coating must be compatible with the moisture behavior of the wood. The physical evidence at Carlyle House indicates that the historic roof itself was at some point painted, making careful paint analysis and selection of a breathable, historically compatible coating a preservation opportunity rather than a reason to reject wood. Since it is likely that the shingles were initially left bare without a coating and only so treated after it was worn, I can understand an argument for leaving it off if so desired—as with the original roof, it can always be added later.

A Historically Correct Wood Roof Can Also Be a Durable Roof

If durability is one of the principal reasons being advanced for installing metal, the discussion should distinguish between a poorly specified modern wood roof and a properly specified traditional one. A fifteen-year service life is characteristic of the former, not an inevitable limitation of the material. Properly selected Atlantic white cedar or bald cypress shingles, fabricated to appropriate thickness and installed so that the assembly can dry effectively, can reasonably provide fifty years or more of service. Historic examples have survived considerably longer.

The most defensible replacement for the Carlyle House would be a roof of round-butt Atlantic white cedar shingles matching the general appearance and dimensions of the surviving historic example. If suitable Atlantic white cedar cannot be acquired, bald cypress would be an appropriate alternative. It was also commonly used historically in the region, is visually similar, and can perform comparably well.

I would recommend:

- a minimum butt thickness of 5/8 inch, with 3/4 inch preferable;
- clear stock;
- 100 percent heartwood, cut as edge-grain stock;
- early- or virgin-growth, tight-grained material;

- 20-inch shingle lengths, allowing adequate triple coverage while retaining the historic 6-inch exposure;
- most shingles approximately 4 inches wide, corresponding to the surviving sample, with a general width range of 3 to 5½ inches and perhaps 6 inches as an absolute maximum;
- rounded butts corresponding to the surviving Carlyle profile; and
- hand-dressed riven stock if feasible (this can be very expensive and difficult to obtain); otherwise, sawn shingles with exposed faces sanded to remove machine marks.

The longer 20-inch length would not materially alter the visible historic appearance because the exposure would remain approximately six inches. It would instead increase concealed overlap and improve resistance to water infiltration.

Installation Details Matter as Much as the Material

A successful historic shingle roof cannot simply be specified as "cedar shingles" (or worse yet, "cedar shakes") and turned over to an ordinary roofing contractor. Traditional shingle roofs depend upon the interaction of material, detailing, ventilation, fasteners, and workmanship. The shingles must be able to breathe and dry. If moisture is trapped within the roof assembly, even excellent wood will deteriorate prematurely.

The roof should therefore be designed by an architect experienced with traditional roofing and installed by craftspeople who routinely work on major historic wooden roof replacements.

Among the details that should be incorporated are:

- properly swept valleys at the dormers;
- fanned shingles at the hips;
- teardrop shingles along the spine of the hips;
- doubled shingles at the starter course, with square-butt shingles beneath;
- a properly executed combed ridge;
- an assembly that permits the shingles to dry effectively rather than trapping moisture;
- lead or lead-coated copper flashing wherever flashing is visible; and
- limiting ice-and-water shield, if proposed, to valleys, hips, eaves, and ridge rather than encapsulating the entire roof.

The present roof gets some of these details right—especially the fanning at the hips—but a new project would provide an opportunity to execute the entire roof consistently. The roof installed by Peter Post at Salubria in Culpeper County would be an excellent precedent to study because substantial physical evidence survived there to guide the work and the resulting installation was particularly well executed.

The Historic Paint Treatment Should Be Investigated

I would consider painting the new Carlyle roof reddish brown to correspond with the finish preserved on the historic shingle, subject to microscopic paint analysis. Modern latex and acrylic coatings that create relatively impermeable films should be avoided because they can trap moisture within wooden shingles and shorten, rather than extend, service life. A qualified paint analyst should work with the project architect to identify a coating system compatible with both the historical evidence and the moisture behavior of the wood.

Recommended Position for Historic Alexandria

Historic Alexandria has a sound basis for urging that the city and museum not treat standing-seam metal as the presumptive replacement material before the historical and technical questions have been fully resolved. The present discussion appears to rest on three assumptions that deserve reconsideration: that a wood roof will last only about fifteen years; that the historically appropriate roof material is uncertain; and that painting wood shingles necessarily risks accelerated decay. The available evidence does not support those assumptions.

First, a correctly specified traditional wood roof can reasonably be expected to perform for fifty years or more, substantially narrowing the practical difference between wood and an anticipated seventy-five-year metal roof. Second, the historical question is not truly neutral: the Carlyle House itself preserves a shingle whose species, dimensions, form, fastening evidence, and finish all point toward an eighteenth-century wooden roof, while the broader Virginia record overwhelmingly favors wood for a house interpreted to the 1750s. Third, the surviving shingle provides direct evidence that the historical roof was painted after it had worn. Failures associated with incompatible modern coatings, including earlier work at Mount Vernon, argue for using the correct paint system—not for abandoning an otherwise historically supported treatment.

For a building of Carlyle House's significance, the preservation standard should be higher than selecting the longest-lived contemporary roofing material. Where direct physical evidence survives, the preferred treatment should follow that evidence. On the information presently available, standing-seam metal would represent a substantial interpretive change without comparable historical support. A properly specified and expertly installed wood-shingle roof, by contrast, would reconcile historical accuracy, durability, and responsible stewardship.

Willie Graham
Curator of Architecture (retired)
Colonial Williamsburg Foundation
Attachments

Early or original surviving shingle from the Carlyle House. Photograph by Mick Worthington, 2026.

Detail of nail holes and impression of rose head nails made into the wood. Photograph by Mick Worthington, 2026.

Detail of wear on lower edge off shingle and subsequent paint—likely Spanish brown or possibly red lead. Photograph by Mick Worthington, 2026.