MEMORANDUM

TO: Timothy J. Baroody, City Manager
FROM: Kate Schwartz, Senior Historic Resources Planner
SUBJECT: Action Plan for the Renwick Complex
DATE: February 23, 2024 (for the February 27, 2024 Council meeting)

ISSUE

In December 2023, the Renwick Complex Working Group reported its recommendations to the City Council for repositioning and ensuring the preservation of the property that includes the Renwick Courthouse, Wallace Library, Old Jail, and surrounding site. City staff was directed to develop an action plan incorporating these recommendations for further review and consideration by the City Council.

RECOMMENDATION

Adopt the proposed action plan and direct staff to continue to address immediate maintenance needs and assessment of the building while preparing a Public-Private Education Facilities and Infrastructure Act (PPEA) solicitation for adaptive reuse of the Renwick Complex.

An action plan in three phases is recommended:

1. Continue maintenance and assessment tasks that are already in progress or scheduled in FY24, including replacing heat pumps, completing structural repairs to the Renwick bell tower, and conducting water infiltration testing at the bell tower and limited surrounding areas.

2. Pursue additional maintenance and repair tasks identified by the Renwick Complex Working Group, in the December 2023 Conditions Reassessment, and through ongoing assessment including addressing vegetation and drainage, assessing needed window repairs, and evaluating the national historic significance of the property for potential National Register listing.

3. Prepare a PPEA solicitation for adaptive reuse of the complex for City Council's review.

BACKGROUND

The Renwick Complex Working Group coalesced around the goal of reusing the second floor courtroom space in the Renwick Courthouse as a venue for live performances and event rentals. The courthouse building, and specifically the courtroom, was identified as the first priority for reuse due to concerns about deterioration of this historic resource and recognition of its importance to the community and high level of historic significance. The group recommended five steps to prepare for reuse:

1. Solicit proposals for adaptive reuse of the complex in a public-private partnership, prioritizing rehabilitation of the courtroom as an event/performance venue;
2. Conduct an updated market analysis;
3. Consult with DHR and begin assessment for an individual National Register of Historic Places nomination;
4. Conduct a condition assessment and continue critical maintenance and repair tasks; and
5. Ensure public access to information and engage in community outreach.

The City Council directed staff to develop a plan of action in response to these recommendations that balances the immediate needs of the property with efforts to identify a permanent, long-term adaptive reuse. This plan seeks to ensure that the building is stable, but provide flexibility to a developer through a public-private partnership to maximize the potential for private funding, grants, and financial incentives.

Action Plan

In order to ensure that the property is maintained and positioned for reuse, three phases of work are recommended. These steps take into account ongoing or planned maintenance work, recommendations identified in the December 2023 Conditions Reassessment, and a path to solicitation that follows the priorities established by the working group. Expertise from members of the working group has also been used to further refine or target elements of the Conditions Reassessment. Next steps for the complex are recommended to occur in three phases:

1. **Continue in-progress maintenance and repair tasks.**
   A variety of needs, primarily at the Renwick Courthouse and Wallace Library, were identified before and during the working group's meetings, and in the December 2023 Conditions Reassessment. Public Facilities has continued to move these forward, with some already completed and some scheduled within the next months.

   Renwick

   - Abby Construction has replaced the missing glass panes in the bell tower windows and secured all glass.
   - Restoration Engineering, Inc. (REI) performed water intrusion testing around the bell tower and adjoining roofs to determine the need for additional repairs. A report on this work is forthcoming.
   - REI has completed the repair design and construction documents for structural repairs within the bell tower. Minor modifications may still be incorporated as a result of the water intrusion testing with a goal of issuing the RFP for a contractor to

complete these repairs by mid-March. Construction is planned for calendar year 2024.

- Four dehumidifiers and four 36-inch barrel fans were placed in the building to lower the building humidity and increase air circulation, as recommended in the December 2023 Conditions Reassessment.
- One of the three heat pumps has been replaced and is operational. Two additional heat pumps are currently being replaced and work will be completed by March 1.
- City Arborist Bicknell Robbins has been engaged to discuss the recommendation to substantially prune or remove crepe myrtles. Discussion on a treatment path is ongoing.

Wallace Library

- Abby Construction has removed acoustic ceiling tiles, wall paneling, and carpeting to minimize moisture retention in the building.
- Three dehumidifiers and three 20-inch barrel fans were placed in the building to lower the building humidity and increase air circulation, as recommended in the December 2023 Conditions Reassessment.

2. Pursue additional maintenance and assessment tasks to better position the property for adaptive reuse.

The need for additional information-gathering was highlighted through the working group's efforts, in the development of the scope for REI's bell tower repairs, and in the December 2023 Conditions Reassessment. These assessment tasks should be pursued in the near future. Funding is included in the FY25 budget to begin addressing these tasks.

- Repair deflected and misaligned gutters to ensure proper drainage in FY24. In FY25, have the entire roof evaluated and schedule repairs including reattaching snow birds, repairing flashing, and replacing gutters.
- Conduct condition assessment of all windows to determine an appropriate repair plan. Needed treatment may range from small epoxy repairs, to replacement of rotted components, to reconstruction or replacement of sashes. The assessment and repair plan will need to be submitted to the Architectural Review Board for consideration.
- Address vegetation and grading around the building foundations to ensure drainage away from the site and air circulation at the exterior walls as part of a program of water management.

- Install crack monitors on the crack in the foundation wall of the Wallace Library and record monthly readings.
- Inventory and map cracks/damage on the Renwick Courthouse, and conduct water spray testing and infrared camera evaluations to identify areas of moisture infiltration and prioritize repairs.
- Begin consultation with DHR and hire a qualified consultant to begin assessment of the Courthouse's national level of significance for the National Register of Historic Places. This research will inform funding options and evaluation of proposals and would ultimately contribute to an individual National Register nomination.

3. **Prepare a PPEA solicitation for adaptive reuse of the complex**.

Through the working group's process, members found consensus on the concept of a public-private partnership for the complex's reuse and identified both the critical preservation areas and portions of the complex where greater flexibility could be granted in redevelopment. The use of Historic Rehabilitation Tax Credits has also been prioritized both as an important funding tool and as a mechanism for ensuring that the Secretary of the Interior's Standards for Rehabilitation apply to any redevelopment.

City staff has identified a PPEA solicitation as a structure that would allow for the needed creativity and flexibility in the reuse of this unique site. The PPEA supports public-private partnerships for unique sites or needs that may include design, construction, and operation within a single project. The PPEA is a familiar structure that has been used successfully within the City. The rehabilitation of the former Maury School is a relevant example that also utilized the historic tax credits. In order to use the tax credits, tax-paying investors must be brought into the rehabilitation project under a limited partnership arrangement. The local government would maintain a minority ownership interest as a general partner and tax credits would be allocated to the other partners via a process known as syndication.

In order to prepare for solicitation of the project, City staff proposes to gather additional research on potential partnership structures to aid in developing a successful project. This would include reviewing other similar local government-led projects and consulting with tax credit professionals. By doing so, the City will start with a clear understanding of the syndication process and be able to offer clear direction to potential partners. A draft solicitation will be brought to City Council for review in late spring.

ATTACHMENTS

1. Renwick Courthouse, Wallace Library, and Old Jail: Conditions Reassessment, Heritage Conservation Consulting, LLC, December 2023

Renwick Courthouse, Wallace Library, and Old Jail: Conditions Reassessment

Prepared by:

Bryan Clark Green, Ph.D.
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Prepared for:
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City of Fredericksburg, Virginia

December 12, 2023 (draft – no illustrations)

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Renwick Courthouse

Summary of most significant preservation issues (in order of significance, most important in **bold**):

1. **Deflected and misaligned gutters are causing rainwater to wash the elevations of the building**
2. **Material deterioration and age of copper roof**
3. **Leak in roof valley above courthouse**
4. **Lack of humidity control in building**
5. **Tower window deterioration**
6. Floor and ladder damage in tower
7. Lack of water management on site / vegetation issues

Roof and Gutters

The copper roof material presents general service life issues. The plaque placed on the front of the courthouse suggests the copper roof is 70 years old, and no evidence suggests roof replacement in the years that followed. Copper is an excellent roofing material, and typically exhibits a 70-year lifespan. **By any measure, the roof is approaching the end of its service life.** Close examination of the roof is required to identify metal fatigue, micro-cracks, and pinholes, all of which are suspected.

The roof also presents a series of issues related to damage and previous repair. There are multiple areas where asphalt has been applied to the roof as a repair material. There are also many areas where the copper is discolored and pitted (such as on the tower roof) as well as areas where the copper appears to have thinned. There are many plugs in the copper around the lower margins of the roof. Perhaps these are former attachment points for snow dogs or rails, originally intended to hold melting snow that are now missing. The lack of snow dogs is also causal factor in a significant gutter issue as discussed below.

The gutters are in poor condition and are the functional cause of many of the issues presented by the exterior walls and windows. During rain events, water cascades over the gutters, rolling across the face of the building and leading to a series of downstream events (as discussed below). It appears that a lack of snow dogs has led to years of slow-loaded ice dams crashing into the gutters, and slowly deflecting the copper. The gutters are simultaneously positioned away from the building (allowing water to bypass them); positioned to tip water back against the building instead of conveying it to the downspouts; and badly sagging in other areas which hold water during rain events and lead to point cascades down the face of the building. For example, the north and south ends of the gutter on the east side elevation are bent and sagging, and water collects at each end of the gutter run, nowhere near the downspout. In addition, there is extensive bellying and over-spill, and sections of gutter hold rain long after the rain event has concluded.

Changes from 2016:

- The roof material issue remains from 2016, with continued damage from ice events. The ability to examine the roof by drone today has made it easier to assess previous damage and misalignment of gutters. The ability to examine the building during a significant rain event also helped to confirm overspill from gutters.

Recommendations:

- *A metal roofing specialist should closely examine the roof, gutters, and downspouts, both to assess the general condition of the copper material, but also to evaluate the specific repair issues mentioned below. The specialist should pay particular attention to the gutters, as their issues appear to extend beyond mere misalignment.*
- *Ultimately, the roof should be replaced during a full restoration of the building.*
- *In the meantime, at a minimum, the gutters should be realigned to the extent possible, and new temporary patches placed over any failing roof repairs.*
- *Special attention should be paid to the intersection of the roof valleys and the gutters, as those appear to be the source of past and current leaks above the courtroom.*
- *When the gutters are replaced, consider resizing the gutters and downspouts in response to altered storm patterns due to climate change, and the increasing intensity of storm events.*

Exterior Walls

The pebble-dash stucco exterior coating, applied in the early 20th Century, is significantly harder than the walls behind it. With no expansion joints (as was typical of the application at the time), this has resulted in a series of cracks across the surface of the building. These range in size from hairline relief cracks to larger, open cracks. As a result, water is getting behind the stucco surface, where it enters the building and further exacerbates the size of the crack. For example, at the lower level of the interior wall there is a knee wall, apparently constructed to resist water entry. Cracks in those areas suggest that water may be coming down between the exterior coating and face of the original exterior wall, exiting at the bottom of the wall, or that water is being drawn up from the ground surface. This water infiltration likely results from a combination of both. The damage is most significant on the north wall.

On the north elevation the central door unit has rust staining at the top, underneath the pebble dash. It appears to indicate there is metal lath beneath the pebble dash that is oxidizing and rust-jacking the stucco away from the substrate. Because the entire elevation is getting badly washed, the situation may be chronic. The transom, which appears to be a replacement, as well as the door and doorframe are suspect, with nail heads rusting through the paint. The door itself exhibits extensive UV damage, the hinges are rusted, and the modern metal hardware is badly corroded. A nonfunctional call box and a doorbell are located nearby on the building. All such attachments should be removed, and the attachment points patched.

Change from 2016:

- The situation remains, with a better sense today of the systemic cause of the issues.

Recommendations:

- *Test the issue by removing section of pebble dash at ground level in damaged area to test for presence of water in wall, using infrared camera to determine the direction of moisture entry. Ultimately, the situation should be addressed in a full restoration by removing the stucco and restoring the original exterior wall finishes.*
- *In the meantime, cracks in the stucco can be addressed by applying an elastomeric coating into the cracks to prevent water entry into the wall system.*

Windows
Windows on all elevations of the building exhibit significant paint delamination and localized rot in muntins and lower rails. On all elevations, but especially on the north and west elevations, there is extensive water bypassing or overflowing the gutters and washing the elevation. Most windowsills on the north elevation are soft and spongy, and many sills have been extensively repaired with putty and (possibly) fiberglass patching materials (Bondo) or caulk. On the windows closest to the center of the elevation, there is extensive algae growth underneath the window and on the water tables, indicating water is washing the elevation and not quickly evaporating.

Change from 2016: The situation remains, with a better sense today of the systemic cause of the issues. The ability to examine the building during a significant rain event also helped to see overspill from gutters and the sheeting of water on the exterior walls, with particular direction of water onto the sills of the north windows.

Recommendation:

- *The root cause is the overhead gutter issue, described above.*
- *After the gutter issue has been resolved, the windows should be repaired using a combination of epoxy repairs for small areas of damage, and unit repair of more badly damaged muntins and lower rails (as necessary), followed by scraping, priming, and painting. Unlike the tower windows (discussed below), the damage is not so extensive that glass is slipping, so this repair is a lower priority, and should only be undertaken after the gutter issue is resolved.*

Bell Tower
Water is actively infiltrating the tower, particularly wind-blown rain. Several windows in the tower exhibit extensive rot to muntins, some of which have resulting in the loss of glazing its, including one recent loss which was found in the planting bed adjacent to the sidewalk on Princess Anne. Four sash are missing panes, or have panes that are ready to fall. **Temporary covering of these windows to prevent falling glass or immediate unit repairs of the wood windows is essential**. The upper circular louvres did not appear to be admitting water, probably due to the louvre angle; it is the rectangular, vertically oriented louvred windows that are admitting water. There is extensive rot to the bell floor landing.

While examining the tower, a significant storm came from the southwest, resulting in a significant amount of water entering the tower. There is a lot of water on the floors, and, not surprisingly, many soft spots and rot in the floor decking, along with missing pieces of floor on the east side. The floor decking is in fair to poor condition. There is also rot to the frame frames, and the center eastern louver is very loose. During the storm, water entered the upper stage and cascading down through tower, which is contributing to the loss of glazing on the two lower stages where there is already substantial loss glazing. The underside of the new pressure treated floor deck on top was soaked, as were the older dimensional joists below it. And almost all the floor surfaces were wet, with rot and loss of material noted on the west side of the tower.

Change from 2016:

- The window deterioration in the tower is significantly worse than in 2016, as is the rot to the floors and ladders. Continued water entry is most likely the cause.

Recommendations:

- ***Temporary covering of these windows to prevent falling glass or immediate unit repairs of the wood windows is essential.***
- *Damaged window units in tower should be repaired or replaced in kind. All repair wood should be back- and end-primed. There is no need for exterior storms; ventilation is required to dry the tower after wetting. The windows in the tower should be actively maintained every three years.*
- *Damaged wood in the floor decking and ladders should be repaired or replaced in kind. The second stage floor requires a new ledger, followed by the rebuilding of the floor decking. All repair wood needs to be back- and end- primed, then painted, for preservation. Because this area is not visible, the repair woods need not match the original in appearance (for example, LVLs may be used), so long as dimensions match. Because of the likelihood of regular wetting, wood should be treated and painted to extend life.*
- *Some of the floor framing, decking, and window surrounds were repaired after the 2016 report. While the repairs were made with pressure-treated wood, the wood was not painted. It should have been back- and end-primed, and all of it primed and painted to better resist the moisture that chronically enters the space. To extend the life the repair material, it should be painted to help it resist twisting and rot.*
- *An alternative approach to the upper stage (which received the most water) would be to treat the floor, in a sense, like a bathtub. After repairing the floor framing and decking, the floor (double-sloped to the rear, and directed to a new opening with a scupper), and curbing would be covered with EPDM. The scupper would direct any water that entered the tower back onto the courthouse roof to the rear, where it would not be visible.*

Foundation / site / water management

Overall, as described above, the most significant issue that flows from the roof is the lack of systemic water management. Damaged gutters cause water to roll down the face of the walls and windows, which results in water getting behind the pebble-dash surface, causing cracking and paint delamination as well as extensive damage to muntins on the wood windows. Because water is now generally landing around the perimeter of the building, the lack of positive drainage is causing general water entry into the crawlspace, causing a systemic moisture problem (as expressed by the termite activity visible in the baseboards on the first floor).

The concrete stair platforms on both the north and south elevations are damaged, with every concrete collar sleeve exhibiting rust jack around it with a significant concrete loss. Both concrete platforms are in fair to poor condition. The west end of the metal stair of the north elevation metal railing has been hit by a vehicle, bent badly, and knocked out of the concrete (this situation remains from 2016).

In general, the site is not sloped away from any of the three buildings, causing site water to be directed towards the buildings, and causing water that is overtopping the gutters of the Renwick Courthouse to remain at the base of the building, entering the mechanical crawlspace.

The crepe myrtles and tall hollies on the west (Princess Anne Street) elevation of the building are trapping moisture against the building, resulting in biological growth on the stucco, and the taller crepe myrtles brush against the building during heavy winds. The plantings on this elevation have simply outgrown their landscape design and are now damaging the building.

Recommendations:

- *When the full renovation is undertaken, site slopes should be addressed. In the meantime, gutter corrections will help address the problem, as will repairing cracked and missing blacktop (especially the large area of missing blacktop at the southeast corner of the building).*
- *Significantly prune or remove the crepe myrtles and tall hollies on the west (Princess Anne) elevation of the building. The low hollies are causing no damage. Removal of taller growth will improve air circulation around the building, which is especially important given the extra layer of the exterior stucco that (as described above) is allowing moisture to enter through cracks and transmit to interior walls. Improved air circulation will dry the stucco more efficiently after rain events.*

Interior

There is no humidity control in the building. As a result, temperature is being used to maintain some humidity control. It is very cool in the building (averaging 73 degrees) with a high humidity level (averaging 58% relative humidity). Removal of furniture along the east and west first floor exterior walls found visible insect damage on the baseboard. This appears to be termite damage, another indication that – whether old or current – moisture is being held along the base of the building.

In the first floor, northwest corner (the old clerk's office), there is extensive plaster damage and efflorescence around the window. The paint is bubbling extensively around the cheeks of the window and below the window. This corresponds to the locations where water sheeted down the north elevation, landing on the sill.

In the first floor, east room (the former records room), there is extensive efflorescence, plaster, and paint loss along the east wall, concealed by tall filing cabinets during the 2016 evaluation. Surface-mounted conduit and computer cabling runs along the wall, most of which is extensively rusted. The wall is furred out along the perimeter, which may be an old repair to a moisture-related issue, If so, the moisture is telegraphing through the repair. This is likely caused by water overtopping the gutters on the east elevation, and the site directing water back to the building. There are also two cast iron foundation vents in the vicinity near the downspouts, and water may be entering these cavities. In addition, water is landing on the top of the buttresses, which remain visibly wet and may be further transmitting water into the building.

In the stair landing area on the north side of the building, there is an active overhead condensate leak from the mechanical equipment onto the acoustical ceiling. There are several stains indicating condensate leaks but this is the only active leak that we were able to identify.

In the second floor, northwest room (the former jury room), there is extensive efflorescence along the exterior walls, along with deep cracking through the outer plaster layers. (The second-floor walls are not furred out as are the first-floor walls). Since wicking water from the foundation cannot be a factor here, this is further evidence of water overtopping or bypassing the gutters.

There is one active leak on the second floor, located in courtroom on the west (Princess Anne Street) elevation. The leak is located where the roof valley addresses the parapet; there is tar on the roof in that area, indicating a previous attempt to repair this leak. This could be the result of the gutter backing up at juncture of roof valley and wall. These gutters have been moved out of alignment (as a result of ice damming and snow load) and are now pitched back toward the building. After a rain event, water could be observed collecting in the gutter in this location.

On the second-floor prisoner area an exterior door was unlocked. The area was connected to the ground by a metal stair, and at the landing was enclosed by a locked fence.

Both attics were examined, and there was no evidence of leaks in either. This confirms that the leak over the courtroom originates where the valley addresses the parapet, not higher in the room.

Changes from 2016:

- The removal of furniture and filing cabinets has allowed for examination of perimeter walls that were previously obscured.

Recommendations:

- *The potential termite damage should be examined soon. That baseboard should be carefully removed to determine whether the damage is active and, if so, identify the path of the insects. A pest control specialist should examine the area and take remedial action. Even if the insect damage is not active, a pest control regimen should be instituted, given the amount of moisture colleting at the base of the building and entering the mechanical crawlspace (see also water management recommendations).*
- *The leak at the intersection of the roof valley and the parapet should be repaired.*
- *Test areas of the furred-out perimeter walls along the east (rear) wall should be removed to examine the source of moisture entry. In addition, the exterior air vents should be examined as possible entry points for water.*

Building Systems

The mechanical systems in the building should remain in service. Because there is no humidity control system in the building, portable dehumidifiers (with drain and pump) should be deployed. I recommend a unit such as an ALOAIR LGR Smart Wi-Fi Commercial dehumidifier with pump. Each unit will cover approximately 2,300 sq. ft. and has an internal capacity of 180 pints and a powerful ejector pump that can be connected by a drain line to a clear drain; if you have a Wi-Fi connection, it can be monitored remotely. The dehumidifiers should be supplemented by 36" barrel fans.

Recommendations

- *Repair condensate leak on north side of first floor, near stair landing.*
- *The HVAC should remain in service in the courthouse. System should be used to maintain a minimal winter temperature of no less than50-55 degrees, and a summer maximum of no more than 80 degrees. The humidity level should not exceed 60%.*
- *Source six 36" barrel fans; place one in each staircase and one in the center on each floor. Doors kept should be open for air circulation.*
- *Source four ALOAIR dehumidifiers. Place two on each floor, connect condensate line to clear drain. Check the dehumidifiers every month, and shift throughout building as necessary.*

Wallace Library

Summary of most significant preservation issues (in order of significance, most important in **bold**):

1. **High humidity in building / lack of air circulation**
2. **Remove moisture retaining items in building**
3. **Gutter misalignment**
4. **Water management (roof and site)**
5. **Foundation wall crack / site issues**
6. Insects in basement

Roof

A slate roof specialist should closely examine slates for attachment, condition of nails, and flashing. An assessment should also be made of the expected life expectancy of the slates. The slate roof should be inspected every five years. There is a significant misalignment of gutters, resulting in overflow. It also appears that one, if not both, downspouts on the west elevation are clogged.

Recommendations

- *Have the roof examined by a slate roof specialist, who can also assess the remaining lifespan of the slates themselves. Plan to have the roof examined at least every five years.*
- *Realign / rehang and clean out gutters.*

Exterior Walls

The columns at the front of the building are badly damaged from water misdirection, with the base and torus of the columns patched repeatedly with several generations of wood and caulk.

The crack in the north foundation wall appears to have expanded since 2016. There are a series of potential causes, ranging from a previously identified tunnel in the area (though not necessarily in the immediate vicinity), vibration from the adjacent road, soil instability, sinkhole, a void caused by a former tree in the vicinity, changes in the street elevation over time, poor drainage, or other potential causes. **The crack is clearly by vertical displacement, not horizontal displacement, since there is no corresponding damage on the south side of the building, nor is there any movement at the rear of the building. It appears that the crack is caused by a localized drop of the foundation wall.**

A contributing factor to the crack may be water management. After a heavy rain, water runs along the north elevation, draining to the rear. Rainwater is definitely scouring the foundation along the north elevation, and the possibility of a buried drain tile in the vicinity (that may conduct water into the foundation) should be examined.

Recommendations

- *Install crack monitors on crack on north foundation wall. Record readings monthly.*
- *Contract with geotechnical firm to check soil types in vicinity, and conduct test borings to ascertain presence of the tunnel or any subsidence in the area.*
- *Based on results of geotechnical investigation, consult with structural engineer regarding repair, and whether foundation underpinning is required. After foundation repairs are completed, relay damaged brick in crack vicinity using brick that match original in dimensions, color, and texture, knitting across the crack, using historically appropriate mortar that matches the original in density, color, texture, and tooling.*

- *Repair columns and bases in kind, but only after roof and gutters have been addressed.*

Site / Foundation / Water management
The wooden ADA ramp is in poor condition; it is rotted at its base, and the railings are detached from its framing.

After rain, erosion at the west side of the building is clear and fresh. Drainage leads onto the adjacent hillside may not be directing water away from the building properly.

Recommendations
- *Repair or replace the ADA ramp.*
- *Install crack monitors and check regularly.*

Interior
With the lack of any interior building condition, and the volume of moisture-retaining items in the building (carpeting, curtains, acoustic ceilings, imitation wood paneling, etc.) the building is very damp. Furthermore, these items conceal the ceilings, walls, and floors, making assessment difficult, and identification of water entry particularly difficult. Large number of dead insects in the basement speak to the moisture levels in the building, as does the extensive efflorescence in the basement. Since the carpeting, curtains, and other such items are spoiled by moisture, and will certainly be removed in any reuse scenario, we recommend removal now as a part of a comprehensive approach to controlling humidity. This will also allow us to see the original surfaces and materials of the building.

Recommendations
- *Remove acoustic ceiling tiles, wall paneling, carpeting, and any other permeable or absorbent fabrics to minimize moisture retention within the building.*

Building Systems
The mechanical systems in the building should be reactivated, even if it is only to provide heat. Because there is no humidity control system in the building, portable dehumidifiers (with drain and pump) should be deployed. I recommend a unit such as an ALOAIR LGR Smart Wi-Fi Commercial dehumidifier with pump. Each unit will cover approximately 2,300 sq. ft. and has an internal capacity of 180 pints and a powerful ejector pump that can be connected by a drain line to a clear drain; if you have a Wi-Fi connection, it can be monitored remotely. The dehumidifiers should be supplemented by 36" barrel fans.
Recommendations:
- *The heating system should be restarted in the Wallace Library. The system should be used to maintain a minimal winter temperature of no less than 50-55 degrees, and a summer maximum of no more than 80 degrees. The humidity level should not exceed 60%.*
- *Source six 36" barrel fans; place two each floor. Doors kept should be open for air circulation.*
- *Source three ALOAIR dehumidifiers. Place one on each floor, connect condensate line to clear drain. Check the dehumidifiers every month and shift throughout the building as necessary.*

Changes from 2016:
- Conditions remain the same from 2016, with continued deterioration as a result of water management issues.

Old Jail
Summary of most significant preservation issues (in order of significance, most important in **bold**):

1. **Lack of mechanical conditioning in building**
2. Water infiltration
3. Building security
4. Lack of water management on site

Roof
No roof leaks were observed. There is no insulation in the roof (see below).

Exterior
At the south end of the building (the concrete block addition), there are large, open joints in the masonry, and exposed, rusted rebar and cracking, as was present in 2016. In the main body of the building, there are large areas of badly corroded concrete, much Portland cement repoint, and vinyl replacement windows. At the base of the second story windows, most of the concrete is missing, exposing raw aggregate, as was the case in 2016. The area around the chiller is discharging a significant amount of water at its base, which remains pooled there.

The exterior basement door was unlocked, and there was evidence of individuals occupying the space.

Recommendations:

- Secure exterior doors / windows to prevent unauthorized access.
- Evaluate concrete damage

Windows
Windows all poorly performing vinyl windows. These will eventually replaced when comprehensive repairs are undertaken.

Site / Foundation / Water management
The Old Jail faces the same site drainage problem as described for the Renwick courthouse.

Interior
The interior of the Old Jail has not changed physically from 2016. The first floor remains in an incomplete state, through more items are being stored in the building (including office furniture and exhibits from the old Fredericksburg Area Museum). The second floor of the building remains in the same condition as 2016. The first floor is very hot: 92.5 degrees and 61% humidity. With the exception of the small ground-floor area used by the Fredericksburg Police (which appears to be largely used for storage), the building is not conditioned. There are significant cracks telegraphing through the north end wall, and water was visible beneath vinyl replacement windows. The second-floor cell area is even hotter than the first floor, measuring 94.1 degrees and 60.1% relative humidity. The ceiling measures 105.4 degrees, indicating a complete lack of any roof insulation.

In the area occupied by the Fredericksburg police, there is water ponding on the floors, and it appears that the water was disconnected though the toilets have continued to be used.

In the connection that was opened between the two second floor spaces, a window was opened up by cutting through the masonry below the window and filling in the upper portion with three courses of cinder block, indicating the age of the repair. The three courses are simply mortared to the masonry above, and not tied into the flanking masonry or supported from below. This could easily fall on someone. (It appears that a steel window framed into this location. The rebar was cut through and the concrete below chiseled out.)

Recommendations:

- *Because there is no insulation in the roof, if possible, put white coating on roof to reduce heat by improving reflectivity. This will help with interior temperature extremes.*
- *Secure door at basement alley – there is evidence of people entering and staying in building.*
- *Remove everything from basement and dry it out. Everything that is stored in this area has been damaged by moisture. It is important to restore air circulation to this area.*

Building Systems

The mechanical systems have been disconnected. Temporary, minimal heat should be provided in the winter. Because there is no humidity control system in the building, portable dehumidifiers (with drain and pump) should be deployed. I recommend a unit such as an ALOAIR LGR Smart Wi-Fi Commercial dehumidifier with pump. Each unit will cover approximately 2,300 sq. ft. and has an internal capacity of 180 pints and a powerful ejector pump that can be connected by a drain line to a clear drain; if you have a Wi-Fi connection, it can be monitored remotely. The dehumidifiers should be supplemented by 36" barrel fans.

Recommendations

- *Temporary winter heating should be used to maintain a minimal winter temperature of no less than 50 degrees. The humidity level should not exceed 60%.*
- *Source five 36" barrel fans; place one in in the basement and two on each floor. Doors kept should be open for air circulation.*
- *Source one ALOAIR dehumidifiers. Place one in the, basement, connect condensate line to clear drain. Check the dehumidifiers every month, and shift throughout building as basement dries.*

Mothballing Plan

This report investigated the possibility of mothballing the Renwick Courthouse, Wallace Library, and Old Jail, as a means of preserving the buildings until full renovations could be undertaken. Using materials such as National Park Service Preservation Brief 31, Mothballing Historic Buildings, and William Rose's Water in Buildings: An Architect's Guide to Moisture and Mold (Wiley, 2008), I examined the process of mothballing for these buildings.

The recommendations below are drawn from NPS Preservation Brief 31; they are followed by specific mothballing recommendations and a discussion of the limitations. Many of the recommended items are either completed or underway. There are issues with mothballing, which are also discussed below.

1. Prepare a condition assessment of the building *(completed -- HSR)*.
2. Exterminate or control pests, including termites and rodents (underway – as part of city building maintenance).
3. Protect the interior from moisture penetration *(see below)*
4. Secure the building and its component features to reduce vandalism or break-ins *(completed with recommendations)*.
5. Provide adequate ventilation to the interior *(see below)*.
6. Secure or modify utilities and mechanical systems *(see below)*.
7. Develop and implement a maintenance and monitoring plan for protection *(underway)*.

Items #1, and #2 have been completed and therefore will not be discussed here, and #7 is discussed in the individual recommendations for each building under building systems.

3. Exterminate or control pests, including termites and rodents.
The moisture around the perimeter of the Renwick Courthouse has encouraged the presence of termites – whether past or present.

- Systematically address water management issues at all buildings, including roof, gutters, downspouts, adjacent vegetation, and site drainage.
- Contract an exterminator to treat buildings for termites, carpenter ants, and rodents.
- Remove any animal droppings or carcasses from the building and dispose of properly.

4. Protect the interior from moisture penetration.
As discussed above, systematically address water management issues at all buildings, including roof, gutters, downspouts, adjacent vegetation, and site drainage. In the case of the Old Jail, monitor water entering by way of the vinyl windows.

- Repair gutters and downspouts to ensure that water is being safely conducted away from buildings.
- Ensure that the site is properly graded to make sure that site water is not directed into building.
- Maintain the site, insuring that vegetation does not grow up around building trapping moisture.

5. Secure the building and its component features to reduce vandalism or break-ins *(completed)*.

Accessible openings were secured and/or boarded over to prevent unauthorized access into the building, though windows and the front doors have not been secured. If the alley door to the basement of the Old Jail cannot be sucurred, or the second-floor door into the Renwick Courthouse, the openings should be boarded over with plywood for protection and security. Plywood panels will be painted for longevity and for a more finished appearance. Security alarms may not be employed.

- Cover the existing storefront with minimum 3/8" Exterior Grade plywood to protect the storefront while the building is unoccupied.
    - Attach the plywood to the wood window frame by means of min. 1 1/4" #6 flat head wood screws @ 16" OC maximum.
- If a true mothballing situation were to be undertaken, the following recommendations would be made:
    - Cover the existing windows with min. 3/8" Exterior Grade plywood to protect the windows while the building is unoccupied.
        - Attach the plywood to the wood window frame by means of min. #6, 1 ¼" flat head wood screws at min. 16" OC.
        - Caulk the edges with silicone sealant to prevent any moisture from entering the gap between the plywood and the frame and causing future rot.
        - To provide adequate ventilation of the building while it is unoccupied, undertake the following:
            - Raise the lower sash of the window and fix it in a raised position.
            - Install a screened, 12" x 12" aluminum storm vent in the plywood in what would be the center of the lower sash of the window.
            - After installing the plywood, the plywood should be painted both for the protection of the wood, and for aesthetic improvement.
        - In the two lower and two upper windows at the rear of the building, behind the aluminum vent, install a thermostatically controlled fan to vent air to the rear of the building (by MEP consultant). This should help to dry existing moisture from the building, as well as to dry any additional moisture that enters the building after mothballing.
    - Cover the existing rear exterior doors with 3/8" Exterior Grade plywood to protect the doors and secure entry while the building is unoccupied.
        - Attach the plywood to the wood door frame by means of min. #6, 1 ¼" screws.
        - Calk the edges with silicone sealant to prevent any moisture from entering the gap between the plywood and the frame and causing future rot.
        - After installing the plywood, the plywood should be painted both for the protection of the wood, and for aesthetic improvement.
- This passive ventilation scenario is not recommended, as will be discussed below.

6. Provide adequate ventilation to the interior.

Once the building envelope has been secured on the new site, steps will be undertaken to ensure that adequate air exchange will be maintained throughout the building. The goal is to achieve a minimum of one to four air exchanges per hour; one to two exchanges per hour in winter, and two

to four exchanges in summer, as per NPS Preservation Brief 31. The purpose of this is to discourage the growth of mold and mildew, so as not to exacerbate damage to plaster and woodwork in the building. It is recommended that louvered openings equivalent to 5% to 10% of the square footage of each floor be provided, as per NPS Preservation Brief 31. It may be necessary for almost every window opening to be fitted out with some sort of passive, louvered opening.

- Three factors argue against passive ventilation:
    - The central Virginia climate is generally too humid to universally allow window ventilation as described above to be effective.
    - Passive ventilation is possible in buildings where the building plate is narrow enough to allow for cross ventilation on all floors and supports a window arrangement to support this (which is not the case in any of the three buildings). I have worked through the calculations for each building and cannot identify adequate openings for passive ventilation.
    - Passive ventilation is challenging in urban environments, where security does not permit the required window openings on the ground floor to support the process.

7. Secure or modify utilities and mechanical systems.

- Since the three buildings remain powered and have significant obstacles to the use of passive ventilation, active building condition (as described above) will be more effective for the Renwick Courthouse, the Wallace Library, and the Old Jail.