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February 29, 2024

Francisco Foschi, CMCA, AMS, PCAM
General Manager
Parkfairfax Condominium Unit Owners Association
33690 Gunston Road
Alexandria, VA 22302

Re: *Summary Letter for Additional Engineering Services
Global Roof Condition Assessment – Attic Survey
Parkfairfax Condominium
Beverly Drive, Coryell Lane, Fitzgerald Lane, Gunston Road, Holmes Lane,
Lyons Lane, Martha Custis Drive, Mount Eagle Place, Preston Road,
Ravenworth Place, Ripon Place, Valley Drive, and Wellington Road
Alexandria, VA 22302
Walker Consultants Project #22-001421.01*

Dear Mr. Foschi:

Walker Consultants (Walker) has completed our additional engineering services in regard to the global roof assessment at Parkfairfax Condominium (the Condominium). This summary letter report provides a brief description of the subject property and project background information, our findings from our field survey work, our conclusions, and our opinion regarding which of the two buildings should be considered for the roof replacement mock-up work. Appendix A of this report contains photo documentation of certain conditions observed during our field work.

Background and Description

Constructed circa 1940, Parkfairfax Condominium (the Condominium) consists of 289 garden style structures located in a mature park setting and there are 22 structure types. The residential structures vary between two (2) or three (3) stories above grade with load bearing multi-wythe brick masonry exterior walls with wood gable roof framing. The roofs of each structure are steep sloped with terracotta tile roofs. There is one structure with asphalt shingles and two structures with flat roofs.

Parkfairfax Condominium (the Condominium) retained Walker Consultants (Walker) to perform a condition assessment of the 286 terracotta roofs and 1 asphalt shingle roof in November 2022. Walker prepared a letter report (dated December 22, 2022) regarding our findings and recommendations for the global roof assessment.

From our letter report, Walker categorized 20 of the roofs as High Priority and recommended that these 20 roofs be the first to be replaced as a global project for the Condominium.

On October 26, 2023, the Condominium informed Walker that it wishes to have Walker access the attic spaces of the units at 6 of the 20 High Priority buildings and from the 6 buildings, Walker is to select 2 of the 6 buildings as the roof replacement mock-up. The 6 buildings that the Condominium selected for Walker to access the attic spaces are Buildings 305, 403, 510, 827, 849, and 953.

Observations

On December 5, 2023, a representative from Walker visited the six (6) subject buildings listed above and accessed the attic spaces to perform a visual observation of the existing roof attic space and ventilation provisions that were visually and physically accessible. While we were on-site, access to the attics of Unit 1433 – Building 403, Unit 3712 – Building 510, Unit 3337 – Building 827, Unit 3223 – Building 849, and Unit 1506 – Building 853 was not provided.

From our field work performed, the following are typical observations Walker noted in multiple attics.

1. Dark staining, which suggests moisture intrusion, on the roof sheathing and roof trusses. Refer to Photos 1 through 3 and 18 in Appendix A.
2. Nails puncturing through the roof sheathing, which suggests previous repairs to either the roof underlayment or terracotta roof tiles were performed. Refer to Photos 3 and 18 in Appendix A.
3. Cracks within the roof sheathing. Refer to Photos 4, 5 and 19 in Appendix A.
4. Damaged/broken members of the roof trusses. Refer to Photos 6 through 8 in Appendix A.
5. Missing members of the roof trusses. Refer to Photos 8 and 9 in Appendix A.

The following are observations that Walker observed within attics of specific units.

1. Unit 3578 – Building 305: A web member at one of the roof trusses was replaced with a piece of polyvinyl chloride (PVC) trim. Refer to Photo 10 in Appendix A.
2. Unit 1427 – Building 403: A coating/staining was applied to several sections of the existing roof sheathing. Through a conversation Walker had with Parkfairfax Maintenance, it is our understanding that this was applied in an effort to help address reported moisture intrusion. Refer to Photos 20 and 21 in Appendix A.
3. Unit 1429 – Building 403: Section loss in the roof sheathing exposing the underlayment. Refer to Photo 11 in Appendix A.
4. Unit 3329 – Building 827: Previous repair performed to a web member at one of the roof trusses. Refer to Photo 12 in Appendix A.
5. Unit 3229 – Building 849: White staining observed on the roof sheathing and top chord of a roof truss. Liquid moisture also observed on the roof sheathing where the white stain was observed. Refer to Photos 13 and 14 in Appendix A.
6. Unit 3329 – Building 849: Deteriorated roof sheathing. Refer to Photo 8560 in Appendix A.
7. Units 1500 and 1501 – Building 953: The cupola appears to provide air flow for the attics of the subject units. Walker observed staining on the framing components for the Cupola that suggest moisture intrusion. Refer to Photos 16 and 17 in Appendix A.

Conclusions

Based on our attic observations from December 5, 2023, site visit as well as our exterior observations performed as outlined in our December 22, 2022 report, it is Walker's opinion that the two buildings that should be considered for the roof replacement mock-up work are Buildings 849 and 953.

It is Walker's opinion that these two buildings should be part of the mock-up work due to:

1. The amount of moisture staining observed on the exposed surfaces of the roof sheathing from the attic survey (over twenty-five percent).
2. The extent of repair/replacement work performed to the terracotta tiles we observed during our global assessment work performed in 2022.
3. The specific observations noted above we encountered during the field work for the attic survey.

Our conclusion of which two buildings selected excluded the condition of the roof trusses observed within the attic spaces.

It is Walker's opinion that the damaged/broken members of the roof trusses appear to have been due to:

1. Improper connections at the panel points (where members of the trusses intersect); and/or
2. Overloading of the roof trusses.

It is our understanding that the Condominium's by-laws state that storage of personal belongings within the attic spaces is not allowed due to the limit load carry capacity the existing trusses have. From our field work performed, it appeared personal belongings are currently within the attics of:

1. Units 1427 and 1429 of Building 403
2. Units 1500 and 1501 of Building 953

The missing members of the roof trusses appear to have occurred to allow for the installation of the access hatch/stairs for the attics. From our past experience on similar projects the removal of a member of a roof truss impacts the capacity to support the required code prescribed loads.

Recommendations

For the two buildings that are being considered as part of the mock-up for the roof replacement (Buildings 849 and 953) as well as all of the remaining roofs with the Condominium, Walker provides the following conceptual recommendations. These recommendations include the recommendations within our December 22, 2022 report as well as updates to the recommendations with our December 22, 2022 report.

1. Remove the existing roof and replace with either terracotta or synthetic terracotta tile. Included in the roof replacement work will be the installation of new underlayment material as well as ice and water shield, metal counter flashing and drip edges, and new downspout and gutters.
2. Remove and replace damaged/broken/deteriorated existing roof sheathing with new roof sheathing.
3. The fascia wood trim be removed and replaced with synthetic (such as Azek) trim in lieu of wood. The installation of a synthetic fascia trim has the potential to help reduce maintenance cost of the fascia trim as it has a longer life expectancy and longer maintenance interval than painted wood trim.

4. The as-built construction of the roof trusses for the buildings in Parkfairfax do not have an overhang that, typically in new construction, allows for soffit ventilation and currently there is no ridge ventilation at the roofs. Triangular openings with wood trim acting as louvers currently exist on the buildings in an effort to allow air flow within the attic spaces. Behind the wood trim acting as louvers is metal wire mesh in an effort help prevent wildlife (such as birds and squirrels) from entering the attic area. Walker recommends that the wood trim and wire mesh at the triangular louver openings be removed and replaced and use synthetic material for the trim.
5. For the cupola located at Building 953 as well as the Building Types ABCC-21, ABCC-22, and CC-2 located throughout the Condominium, we recommend that:
 - a. The wood panels/slats along the exterior be replaced with PVC.
 - b. The copper metal base and roof be removed and replaced to allow for proper counterflashing to be installed to help prevent moisture intrusion onto the cupola framing components.

In regards to the damaged and missing members of the roof trusses Walker observed during our field work within the attic spaces of the 6 subject buildings, we recommend repairs to the damaged members and installation of new members where the existing members are missing be performed as soon as possible. Until the repairs are performed, no additional loads other than the self-weight of the materials the roof trusses support should be imposed on the roof trusses. It should be noted that there is the potential that roof trusses at other buildings have similar issues.

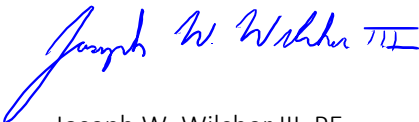
For the roof replacement as well as the repair work associated with the roof trusses, a licensed professional engineer, such as Walker Consultants, should be retained by the Condominium to prepare construction documents (drawings and project manual) and the work should be performed by a qualified restoration contractor.

This summary letter is not intended for construction purposes.

Please feel free to contact us if there are any questions or comments regarding the information presented in this report.

Sincerely,

WALKER CONSULTANTS



Joseph W. Wilcher III, PE
Director – Building Envelope, Forensics & Restoration

Enclosures Limitations
Appendix A: Photographs

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Limitations

This summary letter contains the professional opinions of Walker Consultants based on the conditions observed as of the date of our site visit and documents made available to us by the Parkfairfax Condominium (Client). This report is believed to be accurate within the limitations of the stated methods for obtaining information.

It should be noted that our recommendations are conceptual in nature and do not represent changes to the original design intent of the structure. As a result, this report does not provide specific repair details or methods, construction contract documents, material specifications, or details to develop the construction cost from a contractor.

Based on the agreed scope of services, the assessment was based on certain assumptions made on the existing conditions. Some of these assumptions cannot be verified without expanding the scope of services or performing more invasive procedures on the structure. More detailed and invasive testing may be provided by Walker Consultants as an additional service upon written request from Client.

The recommended repair concepts outlined represents current generally accepted technology. This summary letter does not provide any kind of guarantee or warranty on our findings and recommendations. Our assessment was based on and limited to the agreed scope of work. We do not intend to suggest or imply that our observation has discovered or disclosed latent conditions or has considered all possible improvement or repair concepts.

A review of the facility for Building Code compliance and compliance with the Americans with Disabilities Act (ADA) requirements was not part of the scope of this project. However, it should be noted that whenever significant repair, rehabilitation or restoration is undertaken in an existing structure, ADA design requirements may become applicable if there are currently unmet ADA requirements.

Similarly, we have not reviewed or evaluated the presence of, or the subsequent mitigation of, hazardous materials including, but not limited to, asbestos and PCB.

This summary letter was created for the use of Client and may not be assigned without written consent from Walker Consultants. Use of this report by others is at their own risk. Failure to make repairs recommended in this report in a timely manner using appropriate measures for safety of workers and persons using the facility could increase the risks to users of the facility. Client assumes all liability for personal injury and property damage caused by current conditions in the facility or by construction, means, methods and safety measures implemented during facility repairs. Client shall indemnify or hold Walker Consultants harmless from liability and expense including reasonable attorney's fees, incurred by Walker Consultants as a result of Client's failure to implement repairs or to conduct repairs in a safe and prudent manner.



A Appendix

Photographs

Photo 1. Bldg. 953 – Unit 1507: Red arrows pointing to dark staining on sheathing suggesting moisture intrusion.



Photo 2. Bldg. 827 – Unit 3329: Red arrows pointing to dark staining on sheathing and roof truss suggesting moisture intrusion.



Photo 3. Bldg. 305 – Unit 3578: Red arrows pointing to dark staining on sheathing and roof truss suggesting moisture intrusion. Yellow arrows pointing to nail punctures through roof sheathing.



Photo 4. Bldg. 403 – Unit 1429: Red arrow pointing to crack in roof sheathing.



Photo 5. Bldg. 510 – Unit 3714: Red arrow pointing to crack in roof sheathing.



Photo 6. Bldg. 403 – Unit 1427: Top chord of roof truss with split.



Photo 7. Bldg. 827 – Unit 3331: Red arrow pointing to broken web chord of roof truss.



Photo 8. Bldg. 953 – Unit 1500: Red arrow pointing to damaged web chord of roof truss. Yellow arrow pointing to missing web chord of roof truss.



Photo 9. Bldg. 510 – Unit 3708: Red arrow pointing to missing web chord of roof truss.



Photo 10. Bldg. 305 – Unit 3578: Web chord member of roof truss replaced with PVC trim.



Photo 11. Bldg. 403 – Unit 1429: Red arrow pointing to section loss in roof sheathing.



Photo 14. Bldg. 827 – Unit 3339: Previous repair to web chord of roof truss.

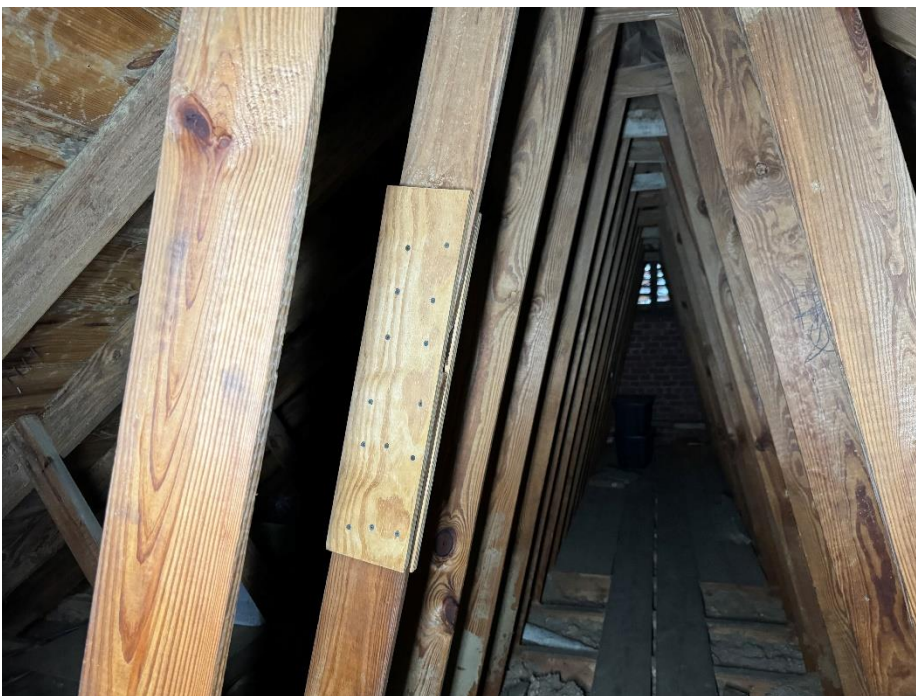


Photo 13. Bldg. 849 – Unit 3229: Step away of region where white staining was observed.



Photo 14. Bldg. 849 – Unit 3229: Moisture observed where white staining was encountered.



Photo 15. Bldg. 849 – Unit 3229: Red arrow pointing to deteriorated roof sheathing.



Photo 16. Bldg. 953: Cupola provides air flow for the attics of Units 1500 and 1501.



Photo 17. Bldg. 953: Red arrows pointing to moisture staining on framing for Cupola.



Photo 18. Bldg. 510 – Unit 3708: Red arrow pointing to dark staining on sheathing suggesting moisture intrusion. Yellow arrow pointing to nail punctures through roof sheathing.

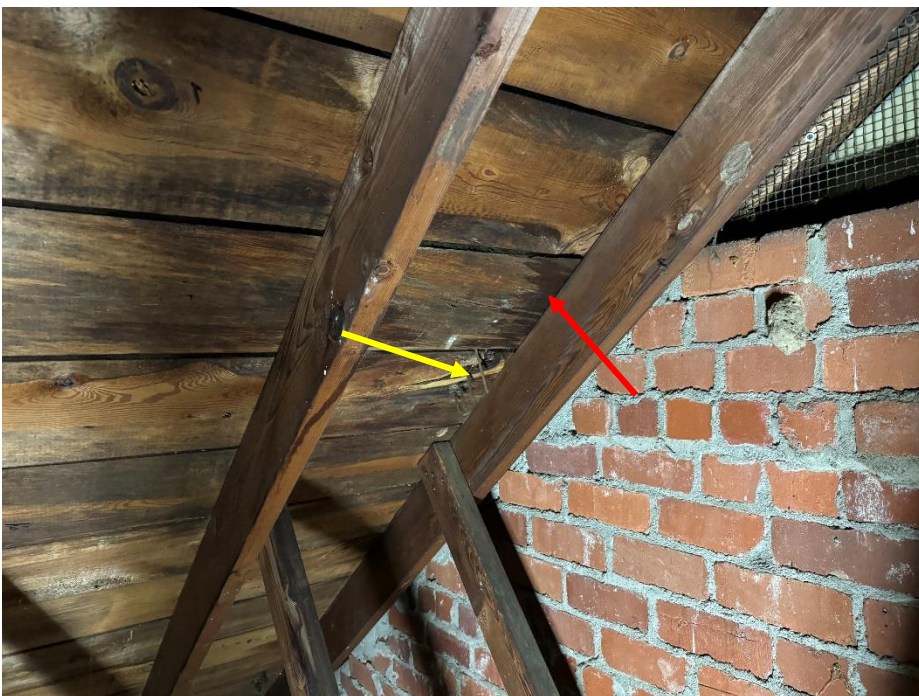


Photo 19. Bldg. 403 – Unit 1427: Red arrow pointing to crack in roof sheathing.



Photo 20. Bldg. 403 – Unit 1427: Red arrows pointing to coating applied on roof sheathing. Evidence of moisture intrusion on roof truss adjacent to applied coating.



Photo 21. Bldg. 403 – Unit 1427: Red arrow pointing to coating applied on roof sheathing.

