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May 19, 2023

Miguel Galvez, Facilities Manager
Fairlington Villages, A Condominium Association
3001 S. Abingdon Street
Arlington, VA 22206

SUBJECT: Report of Engineering Consulting Services - Egress Windows (Revised)
Fairlington Villages
Arlington, VA
FEA Project No. R01.2013.007922.FO17

Facility Engineering Associates, P.C. (FEA) has completed its engineering consulting services related to egress windows at Fairlington Villages in Arlington, Virginia. These services were completed in accordance with the proposal dated March 3, 2023 and authorized on April 6, 2023. Included in this report are a summary of the project information, a review of the scope of services, and FEA's observations and recommendations. The original report dated May 15, 2023, was revised to incorporate feedback from the property.

PROJECT INFORMATION

Fairlington Villages consists of 1,703 residential units in 291 brick, Williamsburg-style buildings in Arlington, Virginia. The community was originally developed between 1942 and 1943 and was converted to condominiums in the late 1970s.

We understand the Board of Directors has established a Special Commission on Potential Architectural Changes (SCOPAC) to evaluate the feasibility and ramifications of allowing unit owners to undertake certain modifications and improvements to their units. One item under consideration is the installation of egress windows in below-grade rooms by enlarging existing window openings in exterior walls. Another item under consideration is the installation of egress windows in below-grade rooms where no window already exists.

FEA was requested to assess the possible impact, if any, that installing egress windows could have on the Association's buildings.

SCOPE OF SERVICES

Document Review

FEA requested the ability to review any documentation related to the scope of services (such as architectural and structural design drawings), but none were available.

Visual Assessment

FEA performed observations and documented general conditions of associated components at select buildings that would be under consideration for egress window installation. Fairlington Villages identified three such buildings and arranged for exterior and interior observations of the window area. The intent of our observations was to look at possible effects to the surrounding masonry wall, consider drainage impact if window wells need to be enlarged, and assess possible fire code ramifications utilizing a subject matter expert sub-consultant.

The assessment was visual in nature and not intended to be destructive to the property. Conditions behind finishes were not observed or assessed. Hidden below-grade elements were not observed.

FEA provided this written report including a summary of observations, photographs of representative conditions, conclusions regarding significant findings, and recommendations for performing the window work under consideration.

The scope of services included only those specifically indicated. It did not include any environmental services such as sampling, testing, or evaluation of asbestos, lead-based paint, lead-in-water, indoor air quality, PCB's, radon, mold, or any other potentially hazardous materials, air-borne toxins or issues.

OBSERVATIONS

FEA visited the site on April 17, 2023. Observations were performed at three units that were possible candidates for egress window installation based on the presence of windows at below-grade units. The units observed included 4725 S. 31st Street (Clarendon model), 2998 S. Columbus Street Unit A1 (Hermitage model), and 3035 S. Buchanan Unit A2 (Monticello model). In general, the observations described in this section should be regarded as typical unless otherwise specifically noted.

Exterior building walls consisted of brick masonry. Foundation construction varied and included a combination of cast-in-place concrete, concrete masonry units (CMU), and brick. Sliding windows were located near the top of the rooms observed with interior finish openings approaching 34 inches wide and about 20 inches tall, on average. Exterior openings at sliding windows were generally 36 inches wide and 25 inches tall. Window wells were a few inches wider than windows and constructed of concrete or galvanized steel. Window well height varied depending on the surrounding grade, and wells were covered with steel bars or plastic covers.

Fairlington Villages indicated that an egress window had previously been permitted for installation at a partially below-grade unit at 3004 S. Columbus Street. The egress window at 3004 S. Columbus Street was reportedly approved under a variance by the Board at the time of installation, and consisted of a single, side-hung casement window with a window well that was constructed of 6-inch x 6-inch wood timber totaling approximately 28 inches in height. The exterior masonry wall appeared to have been sawcut to enlarge the window opening and accommodate the casement window. The window well was

about 39 inches wide along the wall and extended 36 inches away from the window. The bottom of the well contained gravel and did not have drainage provisions; Fairlington Villages reported that water infiltration into the unit has been an issue at times. There was no cover over top of the window well.

CONCLUSIONS AND RECOMMENDATIONS

Based on our observations, it appeared feasible that existing sliding windows could be removed, exterior wall openings increased in height, and a side-hinged, swing type window installed with a larger window well to accommodate egress per the 2018 Virginia Residential Code. Installation of egress windows where none already exist may also be achievable. Note that this may not be possible at all buildings, as building-specific conditions may prevent accomplishing the work in accordance with the codes.

Fairlington Villages stated that property owners requesting installation of egress windows will be required to provide design documents prepared by an engineer as well as a residential building permit for the work from the local jurisdiction. Designs will not be permitted by the Board to widen existing window openings, only increase the height as required to meet building code requirements.

The 2018 Virginia Residential Code discusses egress windows in Section R310, Emergency Escape and Rescue Openings. These provisions include, but are not limited to, the following:

- The minimum net clear opening must be greater than 5.7 square feet, with a net clear height opening not less than 24 inches and net clear width no less than 20 inches.
- The egress windowsill shall not be more than 44 inches above the floor.
- Window wells shall have a horizontal area not less than 9 square feet, with a horizontal projection and width not less than 36 inches.
- Window wells over 44 inches in depth require a permanently affixed ladder.
- Drainage is required for window wells, though there are exceptions listed for soil types or an approved alternative method, which is not specified.
- Bars, grilles or covers placed over the openings or wells must be removable from the inside without special tools.

In addition to following all applicable code requirements, we recommend consideration of the following guidelines based on our observations and discussions with Fairlington Villages should egress window installation at existing windows be pursued by residents in the future:

- The steel lintel at the top of existing window openings should not be altered. Exterior wall construction should only be altered to the extent needed to increase the height of the existing window opening. The wall below the windows should be altered to create a larger opening. Concrete and masonry walls should be sawcut along the perimeter of the area to be removed to maintain wall integrity. If reinforcing steel is impacted in walls, a structural engineer should be consulted.

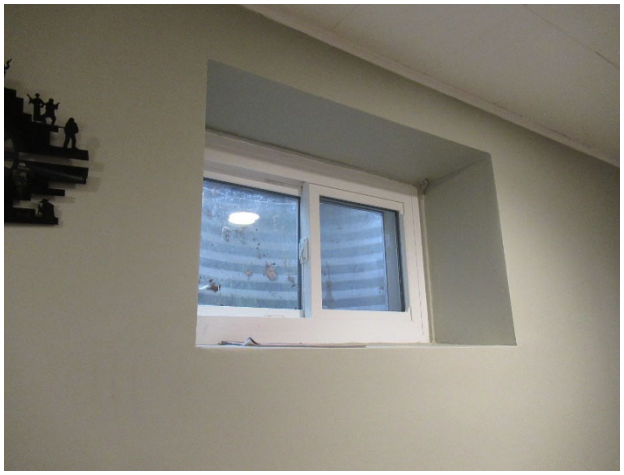
- Windows should be swing type and installed with proper detailing at window heads, jambs, and sills to prevent air and water intrusion.
- Access to and from egress windows should not be impeded by interior and exterior appurtenances, including fences and landscaping.
- Window wells are to be constructed with galvanized steel. They should extend a minimum of 8 inches below the bottom of the windowsill and 3 inches above surrounding grade. We understand the appearance of the timber window well construction at 3004 S. Columbus Street is not preferable.
- Drainage provisions do not appear feasible given the lack of existing below-grade provision to tie into and the relatively flat terrain in many areas. As such, window wells should be covered with a heavy duty, clear plastic cover to shed water away from the building and minimize water entry into the window well. As stated above, any covers should be able to be opened from the interior.

If egress window installation is pursued at below-grade units that do not have existing windows, the provisions of the 2018 Virginia Residential Code would still apply. The preceding guidelines for existing windows would also apply in this case, as well as the following recommended additional considerations:

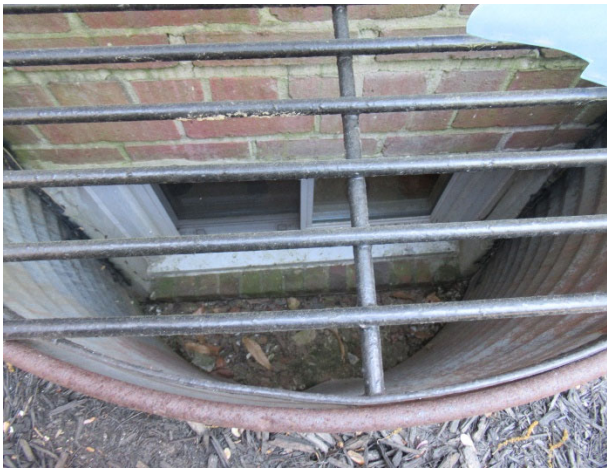
- Locations should be selected to minimize impact to the overall building appearance.
- The overall appearance of new window openings should reflect the characteristics of existing window openings throughout the community. This would include, at a minimum, the window width and installation of a steel lintel at the window head that would require removal and replacement of brick masonry to match existing. The steel lintel should be sized to handle the dead load of the wall above and detailed to be properly installed within the opening.
- Concrete and masonry walls should be sawcut along the perimeter of the area to be removed to maintain wall integrity. If reinforcing steel is impacted in walls, a structural engineer should be consulted.
- Any utility lines or conduit within proposed opening areas should be identified and the location of the window opening adjusted, so they are not impacted.

The Engineer that designs egress windows for a particular unit should assess existing interior and exterior conditions and confirm that all applicable code requirements are met with new windows.

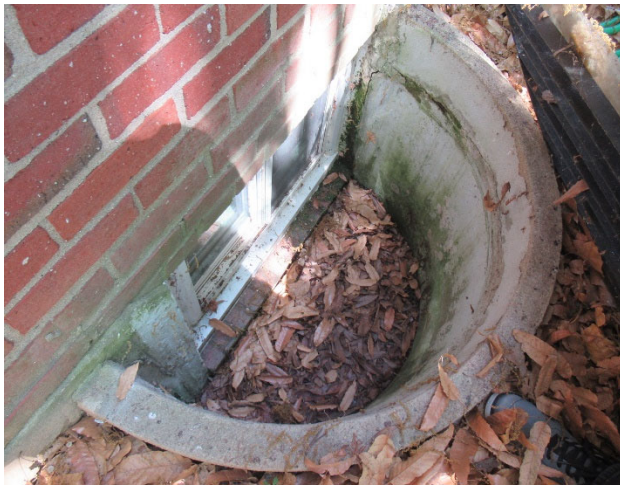
PHOTOGRAPHS



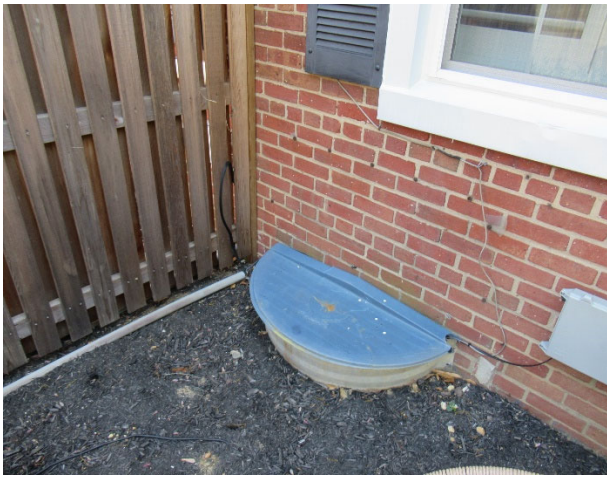
Photograph #1: Typical interior window opening



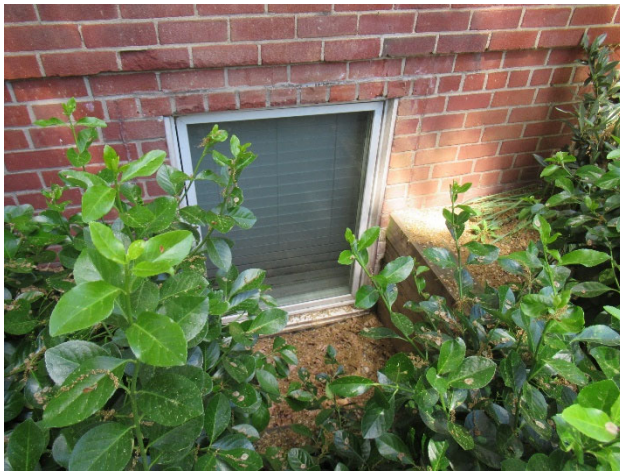
Photograph #2: Window well with galvanized steel and steel bars over top



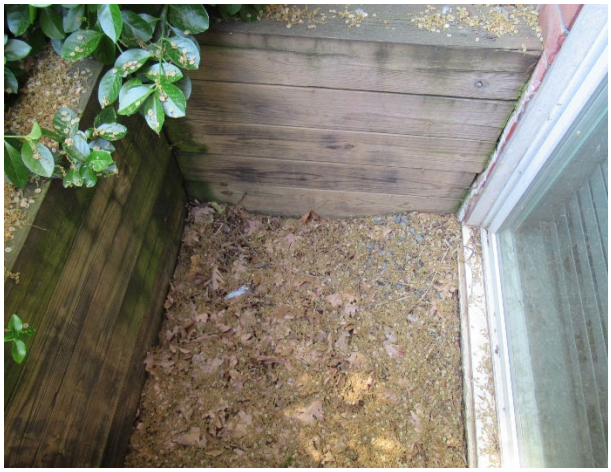
Photograph #3: Concrete window well



Photograph #4: Window well with plastic cover



Photograph #5: Egress window at previously approved location



Photograph #6: Timber window well at previously approved location

CLOSING

This report has been prepared based on FEA's site observations, information presented, and experience with similar building systems. If any information becomes available which is not consistent with the observations or conclusions presented in this report, please present it to FEA for its evaluation.

FEA appreciates the opportunity to provide our services for this project. If you have any questions regarding this report or require additional information, please do not hesitate to contact us.

Respectfully,
FACILITY ENGINEERING ASSOCIATES, P.C.

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