

October 9, 2019

Project B1909885

Mr. Dana Hlebichuk, AIA
Architect, VP
Widseth Smith Nolting
3777 40th Avenue NW, Suite 200
Rochester, MN 55901

Re: Assessment of Building Exterior and Interior Recommendations
Valhalla Condominiums - Building #11
342 Elton Hills Drive Northwest
Rochester, Minnesota

Dear Mr. Hlebichuk:

Braun Intertec Corporation has completed the exterior assessment of the Valhalla Condominiums, Building 11. The purpose was to observe the conditions of the stucco walls, trim, windows, and porches as well as to provide general replacement recommendations based on deficiencies observed. We reviewed the existing construction drawings, walked the site, and photographed the buildings as part of our assessment.

General Project Understanding/Background

Valhalla Condos is a multiple unit condominium development. Our scope of work focused on Building 11 which is a three-story, twenty four (24) unit building. It was constructed in approximately 1978. The building has a wood-framed structure with stucco exterior. The scope of the project included assessment of the exterior elevations with focus on four main issues: (1) the upper level roof overhangs above porches where there has been cold air infiltration; (2) the general condition of the stucco surfacing (cracking, deterioration at grade, etc.); (3) The porch enclosures and related water infiltration; and (4) and the existing windows/perimeter flashings.

We reviewed the original building drawings your office provided us. Background information was provided by facility personnel.

Summary Observations/Deficiencies Identified

We observed the following during our site walkover:

- Original wood trim boards were removed from the building at one point in time and the space was infilled with stucco cladding. As a result, typical vertical cracking was observed in the new to old stucco tie-ins along the old wood trim lines.
- The stucco and exposed wood sill plates at grade have deterioration related to exposure to water and snow.
- The porches, especially at the outside corners and window perimeters, have extensive deterioration in the trim, flashings, framing and in the corner posts.
- The existing vinyl windows are in poor condition and their perimeter tie-in conditions are not watertight. The following issues are apparent:
 - Window screen sealant/perimeter wood failures
 - Single pane glass - not energy efficient
 - Replacement parts difficult to find - limited
 - 30+ years old- have exceeded intended useful life
 - Original wood window frames in place deteriorating/rotting

Test Openings

The following test openings were observed as part of Braun Intertec's assessment of the building exterior and wall system components:

Test Opening #1

South Elevation-lower level-right side lower window sill

- Stucco coating was cracked from the window sill corner out and down the wall
- Stucco - 5/8"-3/4" thick with metal lath
- 30# felt underlayment – signs of previous moisture – dry at test
- 1/2" buffalo board (wood fiberboard) sheathing – there are signs of previous water, stained – dry at test
- 2x6 wood studs – framing - signs of previous moisture; dry at test-solid; good condition
- R11 – faced fiberglass insulation – dry. Air space. Poly vapor barrier was visible

Summary: water is entering cracks and at window sill/jamb and penetrating wall components. Materials were dry but had been wet. At this time no structural damage, but sheathing has dry rot.

Test Opening #2

East Elevation-lower level south window-window head upper right side

- Stucco coating was cracked from the window sill corner out and down the wall
- Stucco – 5/8”-7/8” thick with metal lath
- 30# felt underlayment – signs of previous moisture; dry at test
- 1/2” buffalo board (wood fiberboard) sheathing – signs of previous water, stained; dry at test
- 2x6 wood studs – framing - dry at test; solid; good condition
- R11-faced fiberglass insulation-dry. Air space. Poly vapor barrier was visible.

Summary: water is entering the vertical crack at the trim removal/stucco replacement joint and at window head/jamb and penetrating wall components. Materials were dry but had been wet. At this time no structural damage, but sheathing has some dry rot.

Test Opening #3

East Elevation-lower level porch corner and wood trim

- Porch window sill framing – wood wet and severely rotted
- 3/4” trim board – wet and severely rotted
- 4x4 corner post – wet and severely rotted
- No underlayment or wraps observed at porch corner.

Summary: Poor condition – outside porch corners and faces are going to have very deteriorated wood and framing components – Typical

Test Opening #4

West Elevation – south face at porch wall – 5’ off grade, center of wall

- Stucco 1 1/4” thick with metal lath
- 30# felt underlayment – dry at test
- 1/2” buffalo board (wood fiberboard) sheathing – dry at test
- 2x4 wood studs – framing – dry at test; solid; good condition
- No insulation. Air space. No poly vapor barrier was visible.

Summary: Porch “fin wall” is hollow and dry from outside; 2x4 framing with no insulation.

Test Opening #5

North Elevation – west side at grade near center of wall

- Sill plate face was exposed and water stained – typical
- Stucco – 1 1/2” thick with metal lath
- 30# felt underlayment – dry at test
- 1/2” buffalo board (wood fiberboard) sheathing – previous water; severely dry rotted; dry at test
- 2x6 wood studs – framing – faces water stained (black); previous moisture; solid
- R11-faced fiberglass insulation dry. Air space. Poly vapor barrier was visible.

Summary: The 1/2” buffalo board was severely dry rotted up 16” minimum. The wood sill/base plate was exposed and water stained but dry at time of test. We would expect to find area of deteriorated/replacement sill plate required.

Test Opening #6

West Elevation – north end at grade, window jamb/sill corner to grade

- Cut at large vertical crack from window jamb all the way down to grade
- Stucco – 1”-1 1/4” thick with metal lath
- 30# felt underlayment – dry at test
- 1/2” buffalo board (wood fiberboard) sheathing - previous water; severely dry rotted; dry at test
- 2x6 wood studs – framing – water stained (black); previous moisture; severely dry rotted near face
- 2x6 base plate – faces water stained (black); previous moisture; severely dry rotted
- R11-faced fiberglass insulation – dry. Air space. Poly vapor barrier was visible.

Summary: The 1/2” buffalo board was severely dry rotted up 3’ minimum. The wood sill/base plate was exposed and severely dry rotted but dry at time of test. We would expect to find area of deteriorated/replacement sill plate required along with vertical studs especially below the window sill locations.

Test Opening #7

West facing porch – 3rd floor - Unit #36 – soffit to roof detail

- Removed 4’x4’ area of 1/2” plywood soffit
- Approximately 12’ wooden truss space
- Observed roof vent open into porch soffit space up through roof
- 2-layers of R11 fiberglass batt pushed into ends of truss space over exterior wall – (paper facing toward interior space)
- Interior - truss space open – no insulation visible; no vapor barrier visible

Summary: The insulation at the top of the wall filling the roof truss space is inadequate to prevent cold air infiltration and does not have an air barrier or a vapor barrier present. These spaces need to be closed off air tight and vapor tight with the proper value of insulation.

Recommendations

The stucco surfaces have cracking which is reflecting through the dash coat. Water has entered through these cracks and at the window penetrations. The cracking and water entry into the wall system is worsening, especially on the north elevations of the units. Because of the age of the stucco wall system, the deficiencies observed, and the need to observe the condition of the buffalo board substrate to insure removal of wet or deteriorated materials, the stucco should be removed. We recommend that all of the buffalo board sheathing be removed and new fiberglass batt be installed at these locations with new 3/4-inch plywood sheathing.

General-Wall Scope of Work

Walls

Remove stucco, underlayment, and wet or deteriorated wood plank from each unit, at all elevations. At locations where damaged wood plank sheathing is removed, inspect stud walls and insulation/cavity condition. Replace any wet or deteriorated wood members (including individual window framing members), remove existing fiberglass wall cavity insulation; install new kraft paper faced batt insulation. Install new plywood sheathing, air-barrier and exterior finishes and trim.

As an option, new cement board siding could be installed with 6-inch lap siding and trim – the main benefits would include low maintenance and resistance to weather damage in our climate. Cement board siding is available in a wide color palette with a multi-coat, baked-on color application process. The installation of the covering is straight forward and allows for installation of a weather barrier. Maintenance of this of this type of covering is less difficult than stucco.

Other options are vinyl, aluminum, and steel siding. The installation of these cladding systems is similar to the cement siding board. The main difference is the durability of these systems and ability to resist damage is less. There is also a greater concern for paint fade and chalk as seen with the current cladding.

Windows

The existing windows/window system has exceeded its intended useful life. Finding replacement parts for the windows/screens will become increasingly difficult. The glazing is single pane and the frames are not thermally broken. New window units would be more energy efficient and incorporate detailing which would provide better flashing detailing resulting in better performance.

Porches

In general there are a variety of window systems and porch construction types to date. None of the porches are designed and detailed such that they are watertight and direct water out of the building envelope as needed. There was much evidence of water staining and previous leakage entering from the window frames and interior side walls and porch trim flashing at heads and corners. There is a lot of deterioration of wood materials which need to be replaced which are concealed by the current construction.

We recommend complete demolition of the porches and reconstruction to create a uniform look which meets current codes and provides long term watertight detailing. The porch soffit connection to the existing building truss spaces will be important to properly detail. These spaces need to be closed off air tight and vapor tight with the proper value of insulation.

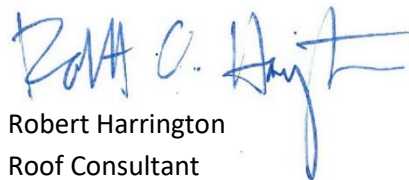
General

In performing its services, Braun Intertec used that degree of care and skill ordinarily exercised under similar circumstances by reputable members of its profession currently practicing in the same locality. No warranty, express or implied, is made.

If you have questions or comments concerning this report, please contact Bob Harrington at 612.704.2540.

Sincerely,

BRAUN INTERTEC CORPORATION



Robert Harrington
Roof Consultant

Reviewed by:



Jason S. Hanlon, PE, MLSE
Associate Principal – Principal Structural Engineer

Attachments
Photographs



Photograph 1

Overview of Test Opening #1 on south elevation-right side lower window sill.



Photograph 2

View with stucco removed and buffalo board exposed.



Photograph 3

Previous water stains and dry rot on face of buffalo board from window sill corner.



Photograph 4

Wood studs and insulation dry and undamaged.



Photograph 5

Test Opening #2-east elevation-lower window head-upper right side.

Photograph 6

Close up view of area of Test Opening #2.



Photograph 7

Stucco cut and partially removed-note felt underlayment laps at area of trim board removal repair.



Photograph 8

Previous water staining on face of buffalo board.



Photograph 9

Wood framing dry and in good condition.

Photograph 10

Test Opening #3-east elevation-lower porch corner at wood trim.



Photograph 11

Wood trim and 4"x4" wood support was wet and deteriorated-no felt underlayment observed.

Photograph 12

Delmhorst meter indicates 40%-wet wood.



Photograph 13

Sill framing exposed and measured wet also-wood was deteriorated.

Photograph 14

View looking back into jamb behind trim board-open to water entry, not flashed.



Photograph 15

Test Opening #4-west elevation-south face of porch wing wall.

Photograph 16

View of stucco and felt underlayment removed-buffalo board was dry.



Photograph 17

View of stucco-1 1/4" thickness-buffalo board was dry.



Photograph 18

Overview of backside of stucco and felt removed-dry and in good condition.



Photograph 19

View of 2x4 wood stud in cavity (uninsulated) and dry.



Photograph 20

View of looking down within 2x4 wall- materials appear clean and dry.



Photograph 21

View of sill plate at grade below Test Opening #4-sill plate was wet and most likely deteriorated.



Photograph 22

Test Opening #5-north elevation-west side at grade-near center of wall.



Photograph 23

Stucco removed-30# felt underlayment visible.



Photograph 24

Buffalo board removed - deteriorated from dry rot.



Photograph 25

View of sill plate at grade – dry but weathered with some dry rot.



Photograph 26

View of 2x6 stud-face stained-previous moisture present-dry at time of test.



Photograph 27

Test Opening #6-west elevation-north end at grade to window sill.



Photograph 28

Stucco removed-felt water stained-buffalo board dry rotted.



Photograph 29

View of sill plate and studs at grade below Test Opening #6-bottom sill plate severe dry rot also face of studs severe dry rot.



Photograph 30

Test Opening #6-additional view of dry rot in wood near grade.



Photograph 31

View of rotted trim boards at corner and window head-west elevation.



Photograph 32

Close up view of rotted trim boards at corner and window head-west elevation.



Photograph 33

View of west facing porch soffit removed Unit #36.



Photograph 34

Two layers R11 batt insulation removed from end of truss space-asphalt facer one side.



Photograph 35

View parallel to outside wall looking down at batt inserted into truss ends.



Photograph 36

View looking straight into below roof deck space-open – no vapor barrier observed above sheetrock ceiling.



Photograph 37

View of vent above outside deck area above soffit out to roof vent.



Photograph 38

View above soffit looking out over porch to outside edge.



Photograph 39

View of outside corner porch soffit.



Photograph 40

View of outside corner porch soffit.