



P.O. BOX 2494
AVON, CO 81620
PH 970.949.7100
FAX 970.949.3377

Observation Report

August 5, 2019

Matt Debus
Vail Management Company

Re: Meadow Creek Condominiums, Vail, CO
(Building A)
Project No. 0307-19 A

On July 29, 2019, at Matt Debus' request, I visited the property referenced above to observe the general condition of the exterior decks and stairs along the south side of the condominium building and provide you with my observations. The opinions expressed in this report are based only on visual observation of the condition of the structure on this date, without disturbing any integrity of the decks or the residence. These opinions do not represent overall property review, structural analysis, or compliance with applicable building code. The original construction documents for the building were not present at the time of my visit.

PURPOSE AND SCOPE:

The purpose of this report is to evaluate the structural integrity of the existing decks along the south side of the condominium for building A, and to provide recommendations of the remedial work that should be done in areas where structural problems and or damage is observed.

BACKGROUND:

The condominium complex is a combination of different clusters of buildings that are spread out over the property and appear to have some similarities in a common repetitive layout. According to limited Town of Vail Planning documents the condominiums appear to be built in the late 1970s or early 1980s. Building A consists of 6 units (A1-A6), built on a moderate sloping lot from the southeast to the northwest. Also according to the some of the older documents from the town it appears that the exterior decks for building A have been modified from the original design. The exterior decks for the units in concern are located on the southeast side of the A building. There were no construction documents at the time of my visit.

OBSERVATIONS:

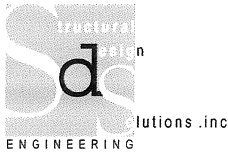
Building A consists of six units in total and appear to stagger two units at a time from the northwest towards the southeast approximately 8'-6" starting with units A1 and A2 on the east side. The exterior decks are located on the southeast side of the building and are approximately 5 feet above the finished grade. They extend approximately 10 feet from the building and the length of the units that are approximately 40 feet being divided by a framed partition wall that divides the deck in half. This partition wall appears to be located between the two units at the party wall. The decks can either be accessed by an exterior door located on the southeast side of each individual unit or by individual exterior stairs to the southeast of the deck. The exterior decks appear to be framed with 2x wood decking on a combination of 2x10 dimensional treated lumber joists, timber beams and posts. Most of the joists bear on mechanical steel hangers on the northwest end and cantilever approximately 14" for units A1, A2, A5, and A6 and 20" for Units A3 and A4 on the southeast end over a timber beam. The northeast end hangers are nailed to either a 2x10 ledger, that is perpendicular with the deck joists or a 3x10 ledger that is on an approximate 45 degree angle to the deck joists. The 2x10 ledger appears to be nailed to the side of the building and the 3x10 ledger appear to be lagged or through-bolted to the bottom of an exterior wall that is cantilevered out from above every 24" along the length of the ledger. The nails that were used on the ledger and the mechanical steel hangers appear to have a rust coating on the heads indicating to me that they are not to be used for treated lumber. The cantilevered deck joists bear on a dropped 6x8 beam that spans continuously over four separate 6x6 posts. The posts are spaced out randomly with the largest spacing being approximately 9'-0" and smallest spacing being approximately 3'-6" located at the stair landing. It appears that where the 6x8 beams bear on a 6x6 post there is either a mechanical steel cap on one side of the beam or a lag that appears to go through the top of the beam into the 6x6 post below. Some of the 6x6 posts bear on a mechanical steel base plate on a concrete circular pier and some of the 6x6 posts appear to be set into the ground. The stairs appear to be framed with three 3x12 stringers, one on each side of the stairs and one located in the middle, with 2x decking treads. The stringers appear to be lagged into a timber beam at the top of the landing and bear on a concrete slab at the bottom. On each side of the stair stringer at the bottom there are 6x6 newel posts that are bolted or lagged to them. These newel posts appear to be the support for the open steel railing of each side of the stairs. The concrete slab appears to have been an existing walk way prior to the modified deck layout. The stair landing is approximately 3'-6" x 3'-6" in size at the top of the stairs. The landing appears to be an extension of the deck joists mentioned above that are bearing on mechanical steel hangers that are nailed to a timber beam. (See image A, B and attached layout).



(Image A)



(Image B)



P.O. BOX 2494
AVON, CO 81620
PH: 970.949.7100
FAX: 970.949.3377

CONCLUSIONS:

At this time, I do not believe that any of the existing exterior decks on the southeast side of Building A will fail structurally. Besides the deck being weathered in areas, there are no significant signs of rot or any indications of instability. Although I do not believe the deck will fail, I do feel that the existing decks are not constructed to today's building codes. I feel that the 6x8 supporting beam is not adequate to support the current Town of Vail design load criteria. I believe that the nails used in the treated lumber do not meet current code standards and may eventually become too corroded to support their imposed loads. Refer to section 2304.10.5 of the 2018 IRC.

The stairs and stair railings do show signs of structural instability and should be attended to as soon as possible. Some of the railing are not attached to the 6x6 newel post and may fall off if not attended to. The stairs move significantly upon putting any force on them and do not appear to be anchored to the concrete slab that they bear upon.

Other concerns that I feel will eventually shorten the workability of the decks is that all the supporting posts should bear on a concrete pier that are a minimum of 48" below grade and not embedded into the ground. The 6x6 post should also have the correct steel mechanical cap and base connection. All 2x10 ledgers should be connected to a solid rim-board with a fastener that can withstand withdraw loading and not just nailing.

RECOMMENDATIONS:

I do recommend the following items have immediate remedial work completed on them:

1. The stair stringers should bear on a treated plate that should be anchored to the existing slab. Provide a solid treated blocking between the stringers so that the newel post located at the bottom of the stairs can properly be anchored. All stair railings should be properly anchored to adjacent newel post.
2. All load bearing 6x6 posts should bear on a concrete pier and footing. The bottom of the footing should be a minimum of 48" below grade for frost protection. The size of the footing can be determined by our office and is based on the load it is supporting and upon the soil bearing conditions. By code the bottom of a wood post should be a minimum of 8" from the finished grade or shall be of naturally durable or preservative-treated wood.


3. Add (3)-4" x 3/16" diameter Timber-Lok screws at 16" on center to all existing 2x10 ledgers that are attached to the building rim-board.

The following items are recommended to help prolong the workability of the existing exterior decks:

1. Provide Simpson LS90 hangers on all deck joists that are missing them.
2. Provide the other half of the mechanical steel cap plates on all existing 6x6 posts where they are missing.
3. Replace all 6x8 beams with 6x10 beams to meet current building code load criteria.
4. Verify that the existing fastening nails are per section 2304.10.5 of the 2018 IRC. If they are not they should be replaced.
5. Maintain decks regularly monitoring them and by resealing them with the proper stain/sealer and or paint.

If you would like to discuss this report, or if we can be of further service to you, please do not hesitate to contact us.

Sincerely,
Structural Design Solutions, Inc.


Jeffrey P. Leonardo, P.E.
President

