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Observation Report

September 11, 2019

Matt Debus
Vail Management Company

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

On September 5, 2019, at Matt Debus' request, I visited the property referenced above to observe the general condition of the exterior decks along the east side of the condominium building and to 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 dated 01-02-1981 for the building were 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 east side of the condominium for building G, 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 cluster 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 G consists of 4 units (G1-G4), built on a moderate sloping lot from the east to the west. Also according to

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some of the older documents from the town it appears that the exterior decks for building G have been modified from the plans dated 01-02-1981. The exterior decks for the units in concern are located on the east side of building G. There were no construction documents for the modified decks at the time of my visit.

OBSERVATIONS:

Building G consists of four units and staggers two units at a time from the northwest towards the southeast approximately 12 feet starting with units G1 and G2 on the northwest side. The exterior decks are located on the east side of the building and are approximately 8 feet above the finished grade. They extend approximately 10 feet from the building and the lengths of the decks vary from unit to unit. There is a framed partition wall that divides the decks in half. This partition wall appears to be located between the two units at the party wall. The decks are accessed by an exterior door located on the east side of each individual unit. The exterior decks appear to be framed with 2x wood decking on a combination of 2x8 dimensional lumber joists, glulam or timber beams and posts. (See Image A, B and attached layouts)

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(Image A)

(Image B)

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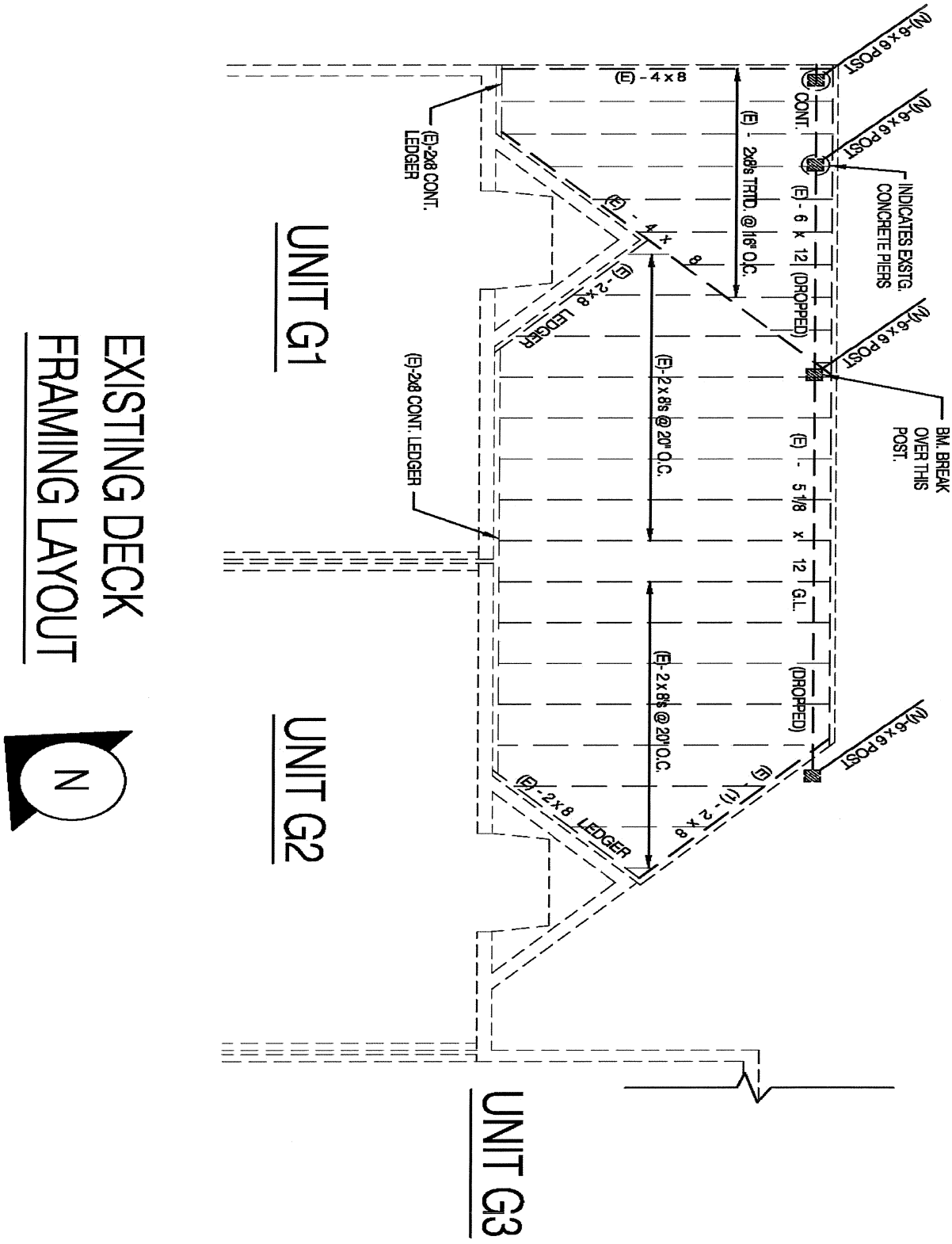
EXISTING DECK FRAMING LAYOUT



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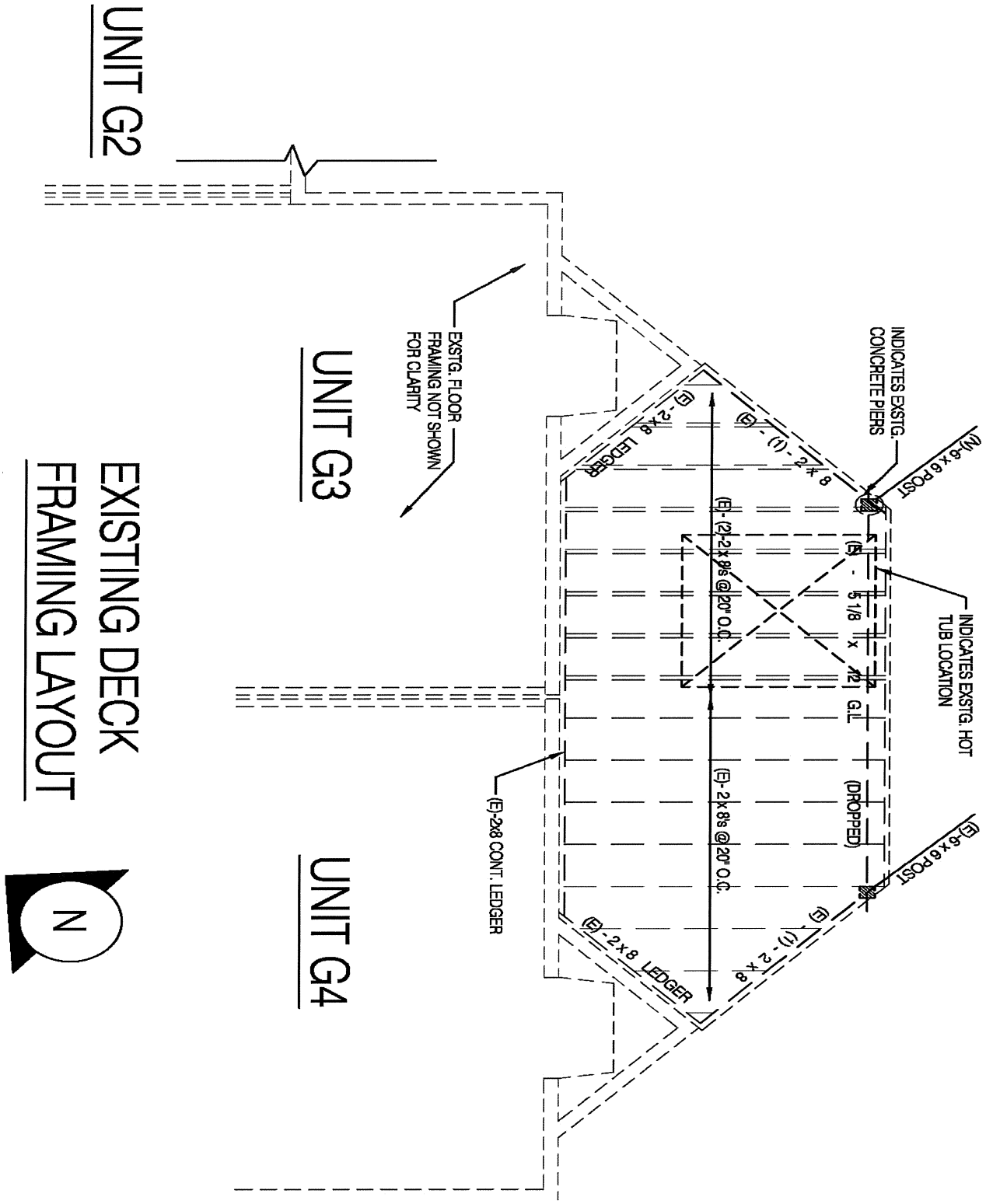

Meadow Creek Condominiums (Building G), Vail, CO **#0307-19 G**

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Unit G1: A section of this deck appears to have been remodeled at some point in time. The deck is connected to unit G2 and is separated in the middle by a framed partition wall. A small section of this deck located to the north of the cantilevered floor above appears newer then the remainder of the deck. The newer section appears to be framed with treated 2x8 deck joists spaced at 16" on center with 2x6 decking. Most of the joists bear on mechanical steel hangers on the west end and cantilever approximately 8" on the east. The west end hangers are nailed to a 2x8 ledger that is perpendicular with the deck joists or a 4x8 that is on an approximate 45 degree angle to the deck joists that appears to be lagged to an older 2x8 rim board. (See Attached Layout) The cantilevered ends of the joists bear on dropped 6x12 beam. The 6x12 beam spans continuously over three separate 6x6 posts that are spaced out approximately 3'-5" and 8'-6". Starting from the north, located at the top of the first two 6x6 posts there appears to be a steel mechanical cap on one side where the 6x12 bears. Both of these 6x6 posts bear on concrete circular piers and do appear to have a mechanical steel base plate. The third 6x6 post located to the south supports the end of the 6x12 and a 5 1/8 x 12 glulam beam. (See Image C) Located at the top of the 6x6 posts it appears that there is a steel mechanical cap on each side of the beam. The bottom of this post appears as though it is bearing on the ground and is showing signs of rot. (See Image D) The remainder of the deck for unit F1 appears to be framed with 2x8 deck joists spaced at 20" on center with 2x6 decking. The paint that was applied to the underside of this decking and joists has mostly peeled away. Most of the joists bear on mechanical steel hangers or are toe-nailed on the west end and cantilever approximately 8" on the east. The west end hangers are nailed to either a 2x8 ledger that is perpendicular with the deck joists or toe-nailed to a 2x8 ledger that is on an approximate 45 degree angle to the deck joists. The ledgers appear to be nailed to the side of the building. The cantilevered ends of the joists bear on a dropped 5 1/8 x 12 glulam beam that supports some of the deck for unit G2. Some of the nails appear to be weathered and show signs of rust. Some of the deck joists are cracking and appear to be rotting on the top in areas and they also appear to be taking on a blackish/gray weathered look. (See Image E) The 5 1/8 x 12 glulam beam spans continuously over two separate 6x6 posts that are spaced apart approximately 16'-4". The paint that was applied to the glulam beam looks weathered and is peeling away. There also appears to be some separation between the laminates of glulam beam. Where the glulam beam bears on the 6x6 post to the north there appears to be mechanical steel caps on both sides. This 6x6 post also supports both the glulam beam and the 6x12 beam described above. (See Image C)

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(Image C)

(Image D)

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(Image E)

Unit G2: A section of this deck appears to have been repaired at some point in time. The deck is connected to unit G1 and is separated in the middle by a framed partition wall. The deck is framed with newer 2x8 deck joists spaced at 20" on center with 2x6 decking. Most of the joists bear on mechanical steel hangers or are toe-nailed on the west end and cantilever approximately 8" on the east. The west end hangers are nailed to either a 2x8 ledger that is perpendicular with the deck joists or toe-nailed to a 2x8 ledger that is on an approximate 45 degree angle to the deck joists. The ledgers appear to be nailed to the side of the building. The cantilevered ends of the joists bear on a dropped 5 1/8 x 12 glulam beam as described above in unit G1. This beam also supports some of the deck for that unit. Located at the top of the 6x6 posts it appears that there is a steel mechanical cap on each side of the beam. The bottom of this post appears as though it is bearing on the ground. (See Image F and G)

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(Image F)

(Image G)

Unit G3: The deck for this unit appears to have been remodeled at some point in time. This unit deck is connected to unit G4 and is separated in the middle by a framed partition wall. The deck is framed with (2)-2x8 deck joists spaced at 20" on center with 2x6 decking. The paint that was applied to the underside of this decking and joists has mostly peeled away. (See image H) Most of the joists bear on mechanical steel hangers or are toe-nailed on the west end and cantilever approximately 8" on the east. The west end hangers are nailed to either a 2x8 ledger that is perpendicular with the deck joists or toe-nailed to a 2x8 ledger that

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is on an approximate 45 degree angle to the deck joists. The ledgers appear to be nailed to the side of the building. The cantilevered ends of the joists bear on a dropped 5 1/8 x 12 glulam beam that supports some of the deck for unit G4. Some of the nails appear to be weathered and show signs of rust. Some of the deck joists are cracking and appear to be rotting on the top in areas and they also appear to be taking on a blackish/gray weathered look. The 5 1/8 x 12 glulam beam spans continuously over two separate 6x6 posts that are spaced apart approximately 15'-4". The paint that was applied to the glulam beam looks weathered and is peeling away. There also appears to be some separation between the laminates of glulam beam. Where the glulam beam bears on a 6x6 post to the north there appears to be a mechanical steel cap on one side and some toe-screws on the other. (See Image I) The 6x6 post to the north appears to be newer and appears to be bearing on a circular concrete pier. There are three metal L-clips at the bottom of the 6x6 post where it bears on the concrete pier. The top of the concrete pier is sloping to the south and is approximately one inch above the finished grade. This deck also has a hot tub on it that is approximately 6'-6"x6'-6" in size. (See Image J and attached layout)

(Image H)

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(Image I)

(Image J)

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Unit G4: This deck appears to be of the original design. The deck is connected to unit G3 and is separated in the middle by a framed partition wall. The deck is framed with 2x8 deck joists spaced at 20" on center with 2x6 decking. Most of the joists bear on mechanical steel hangers or are toe-nailed on the west end and cantilever approximately 8" on the east. The west end hangers are nailed to either a 2x8 ledger that is perpendicular with the deck joists or toe-nailed to a 2x8 ledger that is on an approximate 45 degree angle to the deck joists. The ledgers appear to be nailed to the side of the building. The cantilevered ends of the joists bear on a dropped 5 1/8 x 12 glulam beam as described above in unit G3. This beam also supports some of the deck for that unit. Where the glulam beam bears on the 6x6 post to the south it does not appear that there is a steel mechanical cap. The bottom of this post appears as though it is bearing on the ground. (See Image K and L)

(Image K)

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(Image L)

CONCLUSIONS:

At this time, I do not believe that the exterior decks on the east side of Building G will fail structurally but they should be attended to with some remedial work. Besides the deck being weathered and some signs of rot in areas, I do not believe they will fail in any catastrophic way in the near future. Although I do not believe the decks will fail, I do feel that the existing decks are not constructed to today's building codes. I feel that the 2x8 deck joists spaced at 20" on center and some of the supporting beams are not adequate to support the current Town of Vail design load criteria. I feel that the (2)-2x8 deck joists spaced at 20" on center for unit G3 cannot support the imposed loading of the hot tub. I feel that the cracked deck joists that show signs of rot on the top are losing their structural integrity to support their imposed loads. I feel that the nails that are showing signs of rust may eventually become too corroded to support their imposed loads.

I feel that the 6x6 post for unit G1 and G2 that is showing signs of rot at the bottom will lose its structural integrity over time and it should be replaced. I feel that the 5 1/8 x 12 glulam beam for unit G4 and G5 is well below the size it should be. This beam should be replaced per the following recommendations.

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The glulam beams for all the units are showing signs of being weathered and should be monitored for any signs of rot that may eventually compromise the beam of their structural integrity.

Other concerns that I feel will shorten the workability of the decks is the supporting posts and all other non-treated wood members should bear on a concrete pier that is a minimum of 8" above the grade and a minimum 48" below grade. These wood members should also have the correct steel mechanical connections. All 2x8 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. 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.

2. Provide Simpson ABU66Z base plates and Simpson PC6Z cap plates to all 6x6 posts.

3. Add (3)-4" x 3/16" diameter Timber-Lok screws at 16" on center to all existing 2x8 ledgers that are attached to the building rim-board.

4. Replace all deck joists that are showing signs of rot along the top with new ones.

5. For unit G1 and G2, replace the 6x6 post that is showing rot at the bottom and provide a cap and base plate as described above.

6. For unit G3 and G4, replace the 5 1/8 x 12 glulam beam with a 5 1/8 x15 glulam beam or a 6 ¾ x 12 glulam beam. A second option is to provide a 6x6 post at the mid-span of the existing beam. This post should bear on a concrete pier and should have the correct cap and base plate as described above.

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7. For unit G3, replace the (2)-2x8 deck joists with either treated (3)-2x8 or treated (2)-2x10 deck joists spaced at 16" on center.

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

1. Install Simpson LS70 or Simpson LUS26 hangers on all deck joists that are missing them.

2. Replace all dropped beams that are undersized to meet current building code load criteria. This can be determined by our office on unit to unit bases.

4. Add one more 2x8 deck joist to the existing 2x8 deck joist to meet current building code load criteria or replace all deck joists with 2x10's spaced at 16" on center.

5. Maintain decks by regularly monitoring them, clearing them of snow and ice, 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