



**HERNDON  
ENGINEERING, INC.**

**BALCONY AND DECK INSPECTION**

1501 – 1567 Riverside Dr  
Tulsa, Oklahoma

November 19 and 20, 2012



**River Park Place Condominium Association**  
**Attn: Lorn Cartner**  
1500 Riverside Dr  
Tulsa, Oklahoma

**HERNDON ENGINEERING, INC.**  
Tulsa, Oklahoma  
[www.herndonengineering.net](http://www.herndonengineering.net)



November 25, 2012

River Park Place Condominium Association  
1500 Riverside Drive  
Tulsa, Oklahoma  
Attn: Lora Cartner

**RE: BALCONY AND DECK INSPECTION OF CONDOMINIUM COMPLEX AT  
1501 – 1567 RIVERSIDE DRIVE, TULSA, OKLAHOMA  
FILE #12403 Structural**

Dear Ms. Cartner,

On November 19<sup>th</sup> & 20<sup>th</sup>, 2012, a visual structural inspection was made of the exterior balconies and decks at the above referenced address. The purpose of the inspection was to determine the general structural condition of the balconies and decks and to comment on allowable loading conditions and visible deferred maintenance. Some long term ideas about continued maintenance and improvements are also included. Comments and observations are based upon the condition of the property at the time of the inspection. This inspection report is intended for the exclusive use of our client.

#### **GENERAL PROPERTY DESCRIPTION**

There are 7 separate 4-plex buildings that are two story timber framed structures with a stone veneer and wood siding exterior finish, a gray composition shingle roof covering, and an attached garage. The foundation system is assumed to consist of a concrete slab on grade, concrete stem walls, and a conventional spread footing. The upper level floor and roof are also timber framed. The condominium complex is situated on a relatively level site which has a gentle downhill slope from the east to the west. Several retaining walls exist along the east property line. The complex is adjacent to The River Parks.

The balconies in the front of the building are all timber framed with 2x10 joists at 16 inches on center. The balconies have 2x6 treated decking. Smaller balconies exist at interior units, and larger balconies exist at end units. The timber decks along the back of the buildings all vary in shape and size. The decks are constructed of 2x6 joists at 24 inches on center with 2x6 treated decking. Some of the decks are older, and some appear newer. The amount of maintenance and paint and stain varies from unit to unit.

A visual inspection was made of each unit with respect to the condition of the balconies and decks only. This inspection does not include an inspection of each unit or the exterior siding, roofing, or pavement. This inspection is limited to areas of reasonable access.

**OBSERVATIONS – BALCONIES**

**Common elements of each balcony on the front of the 7 buildings include the following:**

- 2x10 joists that cantilever away from the buildings for a distance of 6 feet.
- Sheet metal flashing between the building and deck.
- Sheet metal cap flashing over the top of each joist.
- A 2x10 rim joist.
- No joist hangers at rim joist to floor joist connection.
- A 2x12 cedar cap joist.
- A timber framed handrail with 5” openings between uprights.
- Most decks have 2x6 decking. The deck had no stain.
- All lumber appears to be treated lumber.
- All balconies have a load capacity of 40 pounds per square foot. Occupancy varies.
- Small decks (6x10) can have 10 people; 2,400 lbs.
- Large decks (6x19) can have 20 people; 4,560 lbs.

**Observations and areas of minor damage to balconies.**

These items of deferred maintenance can be repaired in areas noted below. Please refer to attached photographs of each unit for additional information.

<b><u>Address:</u></b>	<b><u>Deck size:</u></b>	<b><u>Comments:</u></b>
1501	6' x 19'	Decay at rim joist. Replace 2x10 rim at edge of balcony.
1503	6' x 10'	Screen on handrail is different; joists appeared normal.
1505	6' x 10'	No problems observed.
1507	6' x 19'	Trex synthetic deck; minor rot at end of joists; joists need paint.
1511	6' x 19'	Trex deck; Rim pulling away from joist; add joist hangers.
1513	6' x 10'	Decay at one joist and 2x12 cedar rim. Replace joist and 2x12 cedar rim.
1515	6' x 10'	Flower planter bending handrail; joists need paint; rot at blocking above garage door. Replace decayed blocking.
1517	6' x 19'	Past repairs to south end of deck; joists need paint.
1521	6' x 19'	One rotten joist; one split joist. Decay at 2x12 rim. Replace split joist and decayed joist and rim. Remove Astro turf and stain deck. Spray with anti-fungal primer.
1523	6' x 10'	Paint joists and stain deck.
1525	6' x 10'	Joists appear normal. Trex handrail cap is a good idea.

1527	6' x 19'	Decay at joists and center handrail upright. Replace joist and upright. Paint joists.
1531	6' x 19'	Rim joist decayed; replace rim. Replace 2x12 cedar rim. Conflict with joist location and upright for handrail. Modify or move upright.
1533	6' x 10'	Metal trim piece at corner is a good idea. Joists appear normal.
1535	6' x 10'	Decay at south end of rim joist and upright. Replace joist and upright handrail connection. Minor split at end of one joist.
1537	6' x 19'	Decay at two north joists; replace two joists.
1541	6' x 19'	Joists and deck appears normal.
1543	6' x 10'	Add metal corner trim at corner of deck. Minor split at end of joist. New 2x10 rim in past. Gas line at deck. Nails backing out of rim.
1545	6' x 10'	Joists need paint.
1547	6' x 19'	Decay at end of east joist; and joist is broken; replace joist. Hairline crack at west joist is minor.
1551	6' x 19'	Improper repair at east end of joist at north end. Replace joist and extend into wall; repair stone. Three ends of joists have minor rot. Provide joist hangers at decayed ends.
1553	6' x 10'	Joists appear normal.
1555	6' x 10'	West handrail loose and not connected to wall. Improper joist repair spliced over crack. Replace joist. Southwest handrail upright is not connected to joist with bolts. See photo. Repair handrail bolts.
1557	6' x 19'	Recent joist and deck repairs. Provide joist hangers to rim.
1561	6' x 19'	Joists appear normal. Deck covered with leaves.
1563	6' x 10'	Decay at east joist; hole in joist; improper repair. Replace joist. West end of handrail upright pulling away from rim. Plumb upright and add joist hangers. Triangle block looks like a good idea.
1565	6' x 10'	4 decayed joists; replace joists. Add double 2x10 rim with joist hangers. Bear other end of joists in wall or on header.
1567	6' x 19'	Joists need paint. Split joist at northeast corner. Connect handrail to girder with 4-3/8" diameter by 3 inch lag bolts.

### **GENERAL RECOMMENDATIONS - BALCONIES**

**Consider future general improvements on all balconies.**

- Stain all decking
- Add joist hangers between the end of the floor joists and the rim joists.
- Consider synthetic Trex decking to reduce maintenance.
- Spray all exterior decks with an anti-fungal primer.
- Paint all floor joists and bottom side of decking on a regular basis.

**OBSERVATIONS - DECKS**

**Common elements of each deck are as follows:**

- **2x6 rafters at 24 inches on center.**
- **2x6 decking.**
- **Single 2x6 as a load bearing rim joist is acting as a support beam.**
- **2x6 joists that span 8 feet or less will support normal loads of 40 pounds per square foot.**
- **Joist hangers were not used on most connections.**
- **Nails were used to attach the support post to the rim; 2-1/2" diameter lag bolts 4" long are much better.**

Most construction varied from deck to deck. Spans and methods of construction vary. Column foundation supports vary; connections vary; and stair case construction varies. Exterior decks have been visually inspected, but each deck should have a case by case analysis to provide a realistic load capacity. A few decks can be reconstructed.

Timber decks on the ground have earth to wood contact which is not desirable. Decay and termites may be attracted to earth to wood contact. These decks on the ground can be replaced with concrete patio slabs, and may have been replaced with patio slabs at some units.

**Observations and areas of minor damage to decks.**

These items of deferred maintenance can be repaired in areas noted below. Please refer to attached photographs of each unit for additional information.

<u>Address</u>	<u>Size</u>	<u>Allowable Load PSF</u>	<u>General comments and recommended repairs.</u>
1501	6'x12'	40 PSF	Earth contact; decay at top of uprights; consider concrete patio.
1503/05	6'x40'	40 PSF	Upper level balcony is a 6 foot cantilever; appears normal.
1507	6'x12'	40 PSF	Trex deck; earth to wood contact; consider concrete patio.
1511	10'x14'	25 PSF	Joists span 10 ft. 8 ft. is allowable. Add 2-1/2" lag bolts at rim to post connection. Limit load or double floor joists.
1513	11'x14'	25 PSF	Add joist hangers at joist to rim and girder connections. Center girder at center of deck is undersized. Add post at mid span of single 2x6 girder at mid-span of deck.

1515	10'x12'	25 PSF	2x6 joists span 10 ft.; 8 foot is allowable. Limit load or double floor joists. Double 8 foot load bearing rim at side of deck.
1517	6'x12'	25 PSF	Double load bearing rim. Add 2-1/2" lag bolts from rim to posts. Add joist hangers. If repairs are made deck can support 40 PSF.
1521	5'x12'	40 PSF	Earth to wood contact. Consider a concrete patio.
1521 balcony	6'x17'	40 PSF	2x8@16" o.c. cantilevered joists. Joists need paint.
1523	6'x12'	25 PSF	Add mid-span block paver supports at rim. If additional mid-span supports are added then the deck can support 40 PSF.
1525	6'x12'	25 PSF	Add mid-span block paver supports at rim. If additional mid-span supports are added then the deck can support 40 PSF.
1527	6'x10'	10 PSF	Improper framing. Mid-span girder is undersized. Replace deck framing with proper spans and supports. Match 1563 deck.
1527 Balcony	6'x17'	40 PSF	2x8@16" o.c. cantilevered joists. Joists need paint.
1531		100 PSF	Concrete patio
1533		100 PSF	Concrete patio
1535		100 PSF	Concrete patio
1537	6'x12'	40 PSF	Earth to wood contact. Consider a concrete patio.
1541	8'x12'	40 PSF	6" off ground. Supports look normal. Chain link gate.
1543	6'x12'	40 PSF	Earth to wood contact. Consider a concrete patio. Lattice fence.
1545	6'x12'	40 PSF	12" off ground. Steps are loose and improper riser. Replace steps to provide an 8" maximum riser.
1547		100 PSF	Concrete patio
1551	7'x16'	40 PSF	Add 2-1/2" x 4" lag bolts from rim to post.
1553	10'x12'	25 PSF	2x6 joists span 10 feet. Double 10 ft. joists and deck may support 40 PSF. Add joist hangers from floor joist to load bearing rim joist.
1555	8'x12'	40 PSF	Good construction techniques. Posts on pavers & not footing.
1557 High deck	8'x8'	40 PSF	2x6@16". Stronger than other decks. Best small deck.
1557 Low deck	12'x20'	40 PSF	2x8@16". Excellent construction techniques. This deck should be a model for all future deck construction. Footings, post supports, lag bolts, joist hangers, steps, & joist size. Best deck.
1561	9'x19'	30 PSF	5/4" thick decking spans 24". Should be 16" max. Supports are good. Change to 2x6 decking and can raise load to 40 PSF.
1563	6'x12'	40 PSF	Block supports on top of ground. OK.
1565			No access. Gate locked. Deck & balcony.
1567			No access. Gate locked.

### **GENERAL RECOMMENDATIONS - DECKS**

#### **Consider future general improvements on all decks.**

- **Stain all decks with 2x6 decking.**
- **Add joist hanger connections from floor joists to ledger plates and rim joists.**
- **Add 2-1/2" x 4" lag bolts through rim joists into support posts.**
- **Replace timber decks on the ground with concrete patios. 4" concrete slabs with #4 bars at 24" on center each way, with 8" thickened edges with 1-#4 bar continuous.**
- **Consider Trex synthetic decking as an option.**
- **No Astro turf over decking as this will promote moisture retention and wood decay.**

Note: connection details from load bearing rim joists to posts where nailed can be improved with lag bolts. The number of nails used in these connections was not visible and this may affect the overall load capacity of these older timber decks. Some additional details and suggestions can be provided outside the scope of this visual report if desired.

Local codes suggest that all balconies and timber decks in residential construction support a 40 pound per square foot live load in addition to their own material weight. All decks with an allowable load of less than 40 PSF can be modified and repaired to meet current standards.

Deck construction at Unit #1557 meets current standards of construction with respect to the joist size, foundations, load capacity, and support beams and posts. This type of construction can be used as an example for any future deck replacement or repair.

Photographs were taken at the time of the inspection and reflect the condition of the property in areas of concern. These photographs are attached to the back of this report for further review.

The following repairs can be considered at the discretion of our client.

#### **RECOMMENDED REPAIRS:**

- 1) Consider repair and replacement of all decayed lumber at balconies at the front of the buildings per comments made above.
- 2) Spray joists with an anti-fungal primer such as Foster clear.
- 3) Complete all deck modifications to allow decks to support a 40 PSF live load.
- 4) Complete joist hanger and lag bolt connections as noted above.

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I hope this report has been informative and I appreciate the opportunity to provide this inspection for you. If there are any questions regarding the contents of this report, or if I can be of further assistance, please feel free to contact my office.

Sincerely,

HERNDON ENGINEERING, INC.



MICHAEL C. HERNDON, P.E.  
Architectural Engineer



Professional Engineering License #12831  
Home Inspector License #32

MCH: ah

Report results are based upon visual inspections and observations per reasonable access to the inspection area at the time of the inspection. All structural defects may not be noted in the report; only those items observed and sufficient to describe the general structural condition of the building at the time of the inspection. This inspection does not include an investigation into any damage caused by termites or wood destroying organisms, nor does this inspection attempt to determine the scope of damage and necessary repairs as a result of termite infestation or wood destroying organisms. This report should not be construed as a guarantee against future foundation settlements, structural failures, material defects or moisture infiltration. Herndon Engineering, Inc. and the inspector's total liability due to errors and omissions is limited and not to exceed the inspection fee.



1501



1. 1501 balcony. 6'x19'.



2. Decay at rim joist.



3. 2x6 treated decking; no stain.



**4. 1503 balcony. 6'x10'.**



**5. Chicken wire on balcony.**



**6. 2x12 cedar trim at edge of deck.**



**7. 1505 balcony. 6'x10'.**



**8. Joists appear normal. 2x10@16; cantilevered.**



**9. 2x6 decking appears weathered.**





**10. 1507 balcony. 6'x19'.**



**11. Synthetic Trex decking. Very durable.**



**12. Synthetic Trex material used for handrail cap also. Nice.**

1511



**13. Balcony 6' x 19'.**



**14. Rim pulling away from end of joist.**



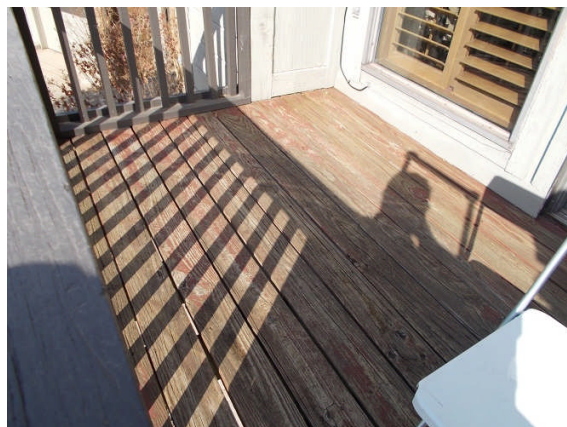
**15. Synthetic Trex decking.**



**16. 1513 balcony. 6' x 10'.**



**17. Decayed joist at east end.**



**18. 2x6 treated decking.**



**19. 1515 Balcony; best flowers. 6' x 10'.**



**20. Some minor dark fungus growth observed.**



**21. Decayed blocking above garage door.**



1517



**22. 1517 Balcony. 6'x19'.**



**23. Peeling paint on joists.**



**24. 2x6 treated decking.**