Long Term Balcony Protection

Long Term Balcony Protection Plan Blueprint
32 Outer and 64 Inner Lantana Units
(Part 1)

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Executive Summary - Part 1
Analysis of Problems in All Units

- **Balcony Committee goal is to develop a blueprint for long term protection of most critical building structures and unit vulnerabilities over extended lifetimes**
  - **by early targeting of specific problem areas, it is hoped to establish a multi-year budgeted repair process without need for expensive assessments**
- **Lantana has been well maintained, with inspections by 5 or more engineering firms over its 21 year life (2000 - 2021)**
  - **2006: Stottler Stagg & Associates, defect inspections only (96 units)**
  - **2009-2010: Concrete Restoration International (CRI) 2,000 square feet (SF) of damage repair in 96 units**
  - **2015: Kepp replaced railings and concrete repair of parapets**
  - **2020: MBV Engineering concrete inspection and Vector Corrosion Services (VCS) salt penetration testing of concrete and PTCs (Post Tension Cables)**
  - **2020/21: Southern Post Tension concrete repairs and added anodes**
  - **2000 - 2021: several paint companies working on all 96 units**

Executive Summary - Part 1 (continued)

- This report contains the first systematic study and analysis of balcony deck failures and repairs in 21 year Lantana history
- Part 1 of this study includes analysis of:
  - all critical areas needed to systematically maintain long term structural future of all four buildings and their 96 units
  - 2010 CRI inspections, damage and repair results
  - 2020-2021 MBV inspections and identification of potential problem areas
- CRI total damage and repair efforts involved all buildings
  - all outer units: 16 North and 16 South
  - all 64 inner units: over 2,000 SF of balcony area
- MBV inspections involved 24 outer units and 5 inner units, approximately 1,000 SF of balcony area

Executive Summary
Historical Analysis of Outer Units (CRI)

- **Final results of 2010 CRI analysis identified 32 outer units having highest damage areas which were then repaired**
  - **16 North units (390 SF, 39%), 16 South units (605 SF, 61%), 995 SF total area (ref. Table 2 and Appendix A)**
  - **In 2010 there were no indications of any problems with PTC systems (North/South or East/West)**
  - **majority of damage were west of railings and shutters, not on deck edges**
- **Major critical locations in 32 North and South units (Figures 2 - 5) were**
  - **1: Large Glass Slider (LS) PTC A line (total N/S 262 SF, 26%)**
  - **5: Corner Outside (OC) PTC A line (total N/S 131 SF, 13%)**
  - **6: Outside Slider facing North or South (OSN/S) PTC B line (total N/S 154 SF, 15%)**
  - **7: Outside Angle Slider (OAS) (total N/S 248 SF, 25%)**
- **2nd floor North & South end units had most damage (515 SF, 52%) and are most vulnerable based this analysis (ref. Figure 6)**

Executive Summary
Analysis of Outer Units (MBV)

- **MBV 2021-22 sound testing stucco/concrete integrity analysis results for all 4 buildings (ref. Table 1, Figure 2)**
  - **24 most potentially vulnerable outer units were identified (894 SF)**
    - **~ 12 North Units (368 SF, 41%) and 12 South units (526 SF, 59%)**
- **MBV identified critical locations at same locations as in Figure 3 & 5**
  - **1: LS PTC A line (total N/S 204 SF, 23%)**
  - **5: OC PTC A line (total N/S 220 SF, 25%), and**
  - **6: OSN/S PTC B line (total N/S 213 SF, 24%)**
  - **In 2020, VCS inspected PTCs and they appeared to be well protected**
  - **PTC boxes need protection from corrosion**
- **MBV identified 5 outer units with potential problems near PTC lines A & B**
  - **1306, 3401, 3301, 4306, 4406, and analysis of these results are addressed in Report, Part 2**
  - **these units were repaired by Southern Post Tension (SPT) with long term protection (anode/concrete/rebar)**
  - **they are now in need of advanced long term care of mechanical and material solutions which will be addressed in Part 2**

Executive Summary
Analysis of Outer Units (MBV)

- **In 2010, Board made decision to contract CRI to inspect and repair all deck stucco/concrete damages incurred between 2000 and 2010**
  - **these damaged areas occurred primarily west of shutters & railings**
- **Between 2010 and 2020 new problem areas were identified by MBV**
  - **approximately 25% of these new areas were in same general areas of repaired 2010 CRI work**
  - **remaining 75% of potential damage sites occurred both at deck edges east (PTC critical areas) and west of railings/shutters**
  - **at this time it can only be estimated that 50% could be concrete problems and 25% deck stucco replacement**
  - **we will only know extent of real damage when we begin repairs in 2022**
- **Buildings having low damage repaired areas in 2010 had large potential damage sites in 2020; and buildings with large repaired damaged sites in 2010 had less potential problems in 2020 (Table 1 & Figure 2)**
- **These analyses confirm benefits of early inspections and immediate repairs when problems are identified**

Executive Summary
Analysis of 64 Inner Units (CRI)
(reference Figure 8, Inner Units)

- **CRI damage & repair efforts on 64 inner units showed total building (B1-4) damage with 1,160 SF total damage/repairs, as follows**
  - **B4 (448 SF, 39%), B3 (429 SF, 37%), B2 (277 SF, 24%) and B1(6 SF, 1%)**
  - **33 of 64 inner units had total damage greater than 10 SF in 4 critical locations designated as most vulnerable (Tables 10 - 14, Appendix B)**
- **Major critical locations (Figure 9 & 10):**
  - **B4: 1-Large Glass Slider LS (303 SF, 68%) near PTC line A**
    2-Inside Corner IC (19 SF, 4%) PTC line A, and
    3-Small Slider SS (122 SF, 27%)
  - **B3 1-LS PTC line A (229 SF, 56%)**
    2-IC PTC line A (32 SF, 7%)
    3-SS (68 SF-16%) and 4-EW (90 SF, 21%)
  - **B2 1-LS PTC line A (170 SF, 61%)**
    2-IC PTC line A (34SF, 12%)
    3-SS (39 SF, 15%) and
    4-End Wall EW (34 SF, 12%)
  - **B1 (6 SF, 1%)**

Executive Summary
Analysis of 64 Inner Units (CRI)
(continued)

- 2nd and 3rd floors had most damage (Figures 11-12 and Appendix B)
  - B4 -2 (179 SF, 40%)
  - B3- 2 (154 SF, 36%)
  - B2- 3 (112 SF, 40%)
- Five inner units repaired by CRI in 2010 (105 SF) are same units inspected by MBV in 2020 (105 SF potential damages)
- Critical locations for all five MBV units (Table 15, Appendix B)
  - 1-LS PTC line A (79 SF, 75%)
  - 2-IC (12 SF, 11%)
  - 3-SS (14 SF, 13%)
- The same units for CRI were
  - 1-LS PTC line A (38 SF, 36%)
  - 3-SS (27 SF, 26%)
  - 4-EW (40 SF, 38%)

Executive Summary
Root Causes

- **Root cause of all 2010 CRI damages was 100% related to Kool Deck stucco put on all deck surfaces between 2000 – 2002**
  - **paints used to cover and protect stucco were low performance acrylics that had high degree of water permeability**
  - **water penetrated coatings, entered into stucco causing cracks, debonding and exposed concrete surface**
  - **it is believed Kool Deck is still on our decks today and may be related to some of 2020-2021 MBV problem areas**
- **Paint is concluded to be weakest link in our protection today**
- **Most important change needed: consistently use a paint contractor who has worked on Lantana decks and knows our unique problems**
  - **this type of contractor has to have extensive experience in using advanced paint systems and a long term verifiable history with long term service life repairs, surface preparation**
  - **monitoring deck work by board members is critical**
  - **Anchor Paint knows Lantana well, has an excellent reputation and is currently applying advanced high performance, long lasting coatings for other condos in our area**

Executive Summary
Root Causes

- It is important to note that only 25% of potential damage areas identified by MBV in 2020 were in exact same locations as CRI 2010 repairs
- So far, only about 50% of potential 2020/21 damages may need concrete repairs and remaining problems only need deck stucco/knockdown replaced
- 2010 CRI work clearly showed
  - buildings having no repair problems developed large potential problem areas in 2020
  - buildings with large repaired areas in 2010 had less potential damage areas in 2020/21 (Figure 2)
- This early CRI study on outer units clearly showed benefits of inspections and repairs every 10 years to maintain health of our buildings
- Other root causes of Lantana's balcony concrete problems are more physical in nature:
  - railings - sliders - shutters - damage to concrete
  - MBV identified potential concrete problem areas near PTC systems
  - All Long term care efforts of MBV problems are in Part 2 report

Executive Summary: Preferred Contractors

- To implement a sustainable long term service protection for our buildings and units, we recommend consistently using the same reliable contractors for our repairs
- Contractors whom have performed well and would be difficult to replace are
  - concrete/rebar/PTC/anodes repairs: Southern Post Tension
  - Space Coast Stucco, Sunny Concrete, Zigmund Builders
  - paint and stucco: Anchor
  - glass sliders (aware of PTC issues): Brooks Glass, our original installer
  - shutters: Best Shutters (original installer)
  - AC replacement: Platt, who have been careful with roof protection when repairing and installing (original installer)
  - roofing: Leeward Roofing (10 years repairing Lantana roofs), All Florida Urethane
- There are other companies which do excellent work, though firms listed above are gold standards

Executive Summary: Conclusions

- Lantana Condos are Unique: (28° 8’ 58.04” North, 80° 35’ 18.2” West)
- Using Google maps of Brevard coastline, it is seen that Lantana is very different when compared with most other 4 building residential condos directly on beach and with separate club house and garages
- Other 4 building condos have different numbers of floors, different roof structures, and smaller or larger footprints compared to Lantana
- Buildings 3 and 4 tend to be more prone to damage than Buildings 1 and 2
- Building 3 was built first and believed used for “construction experiments”
- Building 4 was built last, using some leftovers from other three buildings
- Tricon is well known for building highly durable beach concrete structures
- Tricon also is well known for cutting corners on finishing materials like doors, mansard roofs, railings, etc.
  - Lantana has been replacing and repairing some of these original materials for over 21 years

Executive Summary: Lessons Learned

- Lantana is unique is many ways
- New or established technologies that perform well on other applications and/or different structures does not guarantee they will work on Lantana's buildings
- Kool Deck is a well known stucco product used on numerous pool decks and similar structures
  - between 1999 and 2001 it was applied on balconies of all 4 buildings (96 units)
  - In 2004, South outer unit 2406 had its first concrete damage
  - six years later (2010) Concrete Restoration International (CRI) repaired 2000 SF of Kool Deck damage on all 96 units
  - Kool Deck is believed still on many Lantana decks in 2022, potentially causing problems
- A new advanced heat resistant permanent coating was installed on our roofs in the early 2000's, and advertised to save on roof upkeep expenses
  - over time it caused the original roof system to bubble and fill with water
  - the coating could not be removed and caused loss of our warranty
  - problems areas were patched for years, until a new replacement roof could be afforded

Executive Summary: Lessons Learned
(concluded)

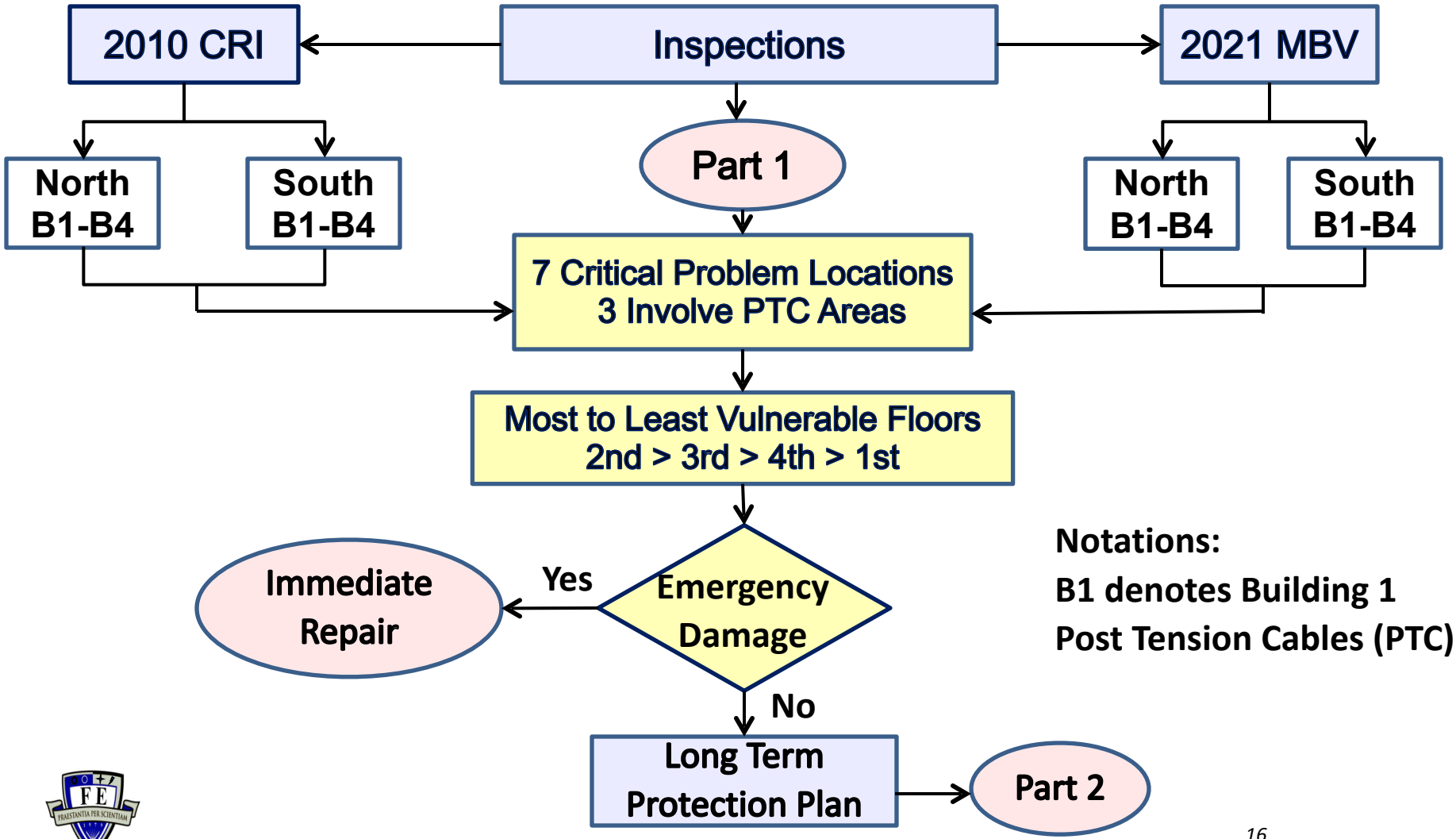
- **Both of these products claimed 30 year lifetimes since they performed well on other decks and roofs**
  - **Lantana's ocean front, beach side structures are dissimilar to most other buildings in Brevard county**
  - **our footprint of separate, and very different buildings, garages and clubhouse have individual micro-weather environments that influences their particular damage potentials**
  - **because our building profiles are different, it is difficult to predict how some protective materials will perform over time**
- **To insure long term protection, we must work with contractors in Brevard County who know our environment and have actual experience working on Lantana properties**

Analysis Overview

- **2010 CRI data and 2021 MBV Engineering data are reviewed in two parts**
  - **outer (end) units were more vulnerable and are reviewed first**
  - **inner units (xx02, xx03, xx04 and xx05) are reviewed next**

Figure 1. Outline

Part 1: Outer Unit Problem Area Analysis
Part 2: Long Term Protection Plan



CRI and MBV Analysis

- **CRI carried out first major inspection/damage/repair work in 2010 on all 96 units**
- **In 2020-2021 MBV only tap tested 24 outer unit decks and determined integrity of different areas on deck stucco/concrete surfaces**
- **Since no repairs were made at that time these test areas were labeled potential damage sites to be fully investigated later (Part 2 of this report)**
- **Table 1 is a direct comparison of CRI's actual damage repair work on 16 North/16 South outer units (all 4 buildings) with MBV potential damage areas of 12 North/12 South outer units (all 4 buildings)**
  - **first floor outer units were not tested by MBV because there are no PTC systems in ground floors**

Table 1.
CRI and MBV Total Damage Assessment Comparison
North and South Outer Units Only; assessed by Square Feet (SF) of Damage

2010 CRI North Outer Units	Total Damage / Repair (SF)
Building 3	177
Building 4	170
Building 2	33
Building 1	10

2021 MBV North Outer Units	Potential Total Damage (SF)
Building 1	140
Building 3	110
Building 2	66
Building 4	52

2010 CRI South Outer Units	Total Damage/ Repair (SF)
Building 4	266
Building 3	189
Building 2	129
Building 1	21

2021 MBV South Outer Units	Potential Total Damage (SF)
Building 3	200
Building 1	197
Building 4	71
Building 2	58

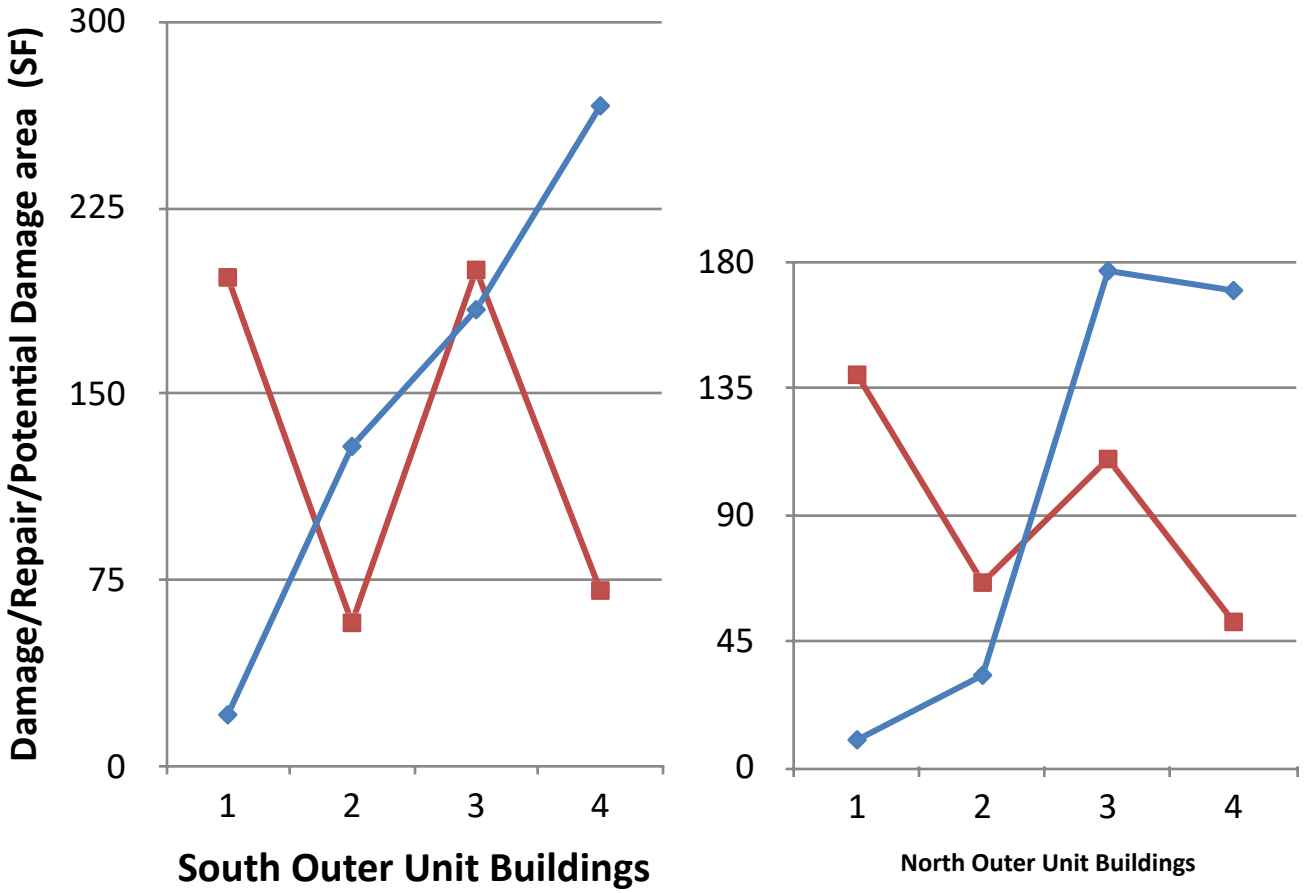
Order of Importance for Long Term Protection

32 North (N)/South (S) Outer Units in Buildings 1 - 4

- **Buildings having largest problem areas are most vulnerable and should receive first long term protection (see Table 1)**
- **Order of importance for long term protection**
  - **2010 CRI damage assessment and repair**
    - **~ worst: B4S (266 SF), B3S (189 SF), B3N (177 SF), B4N (170 SF)**
    - **~ better: B2S (129 SF), B2N (33 SF), B1S (21 SF), B1N (10 SF)**
  - **2021 MBV potential damage assessment**
    - **~ worst: B3S (200 SF), B1S (197 SF), B1N (140 SF), B3N (110 SF)**
    - **~ better: B4S (71 SF), B2N (66 SF), B2S (58 SF) B4N (52 SF)**
- **Worst buildings changed significantly from 2010 to 2021 (Figure 2)**
- **These results confirm the success of CRI early (2010) repairs in protected our decks later in 2021, and suggest all 4 buildings respond differently to stress**

Figure 2. Comparison of Two Damage Assessments

2010 CRI (blue) and 2021 MBV (red) Damage Assessed in SF



Analysis of CRI and MBV Outer Unit Data
Critical Locations Assessed by Damaged Areas (SF)

- **Critical locations of typical outer unit are shown in Figure 3**
- **Direct comparison of 2021 MBV and 2010 CRI critical damage areas for all outer units of B1 through B4 are shown in Tables 2 through 9 and listed in Appendix A**
- **Data from Tables 2 - 9 are presented graphically in Figures 4 and 5**
- **Sum of North/South of damaged area (% SF) for each critical location of each outer unit are shown in Figures 4 and 5**
- **Damage areas (SF) for each outer unit by floor level are shown in Figures 6 and 7 (CRI, 2010) and (MBV, 2020-21)**

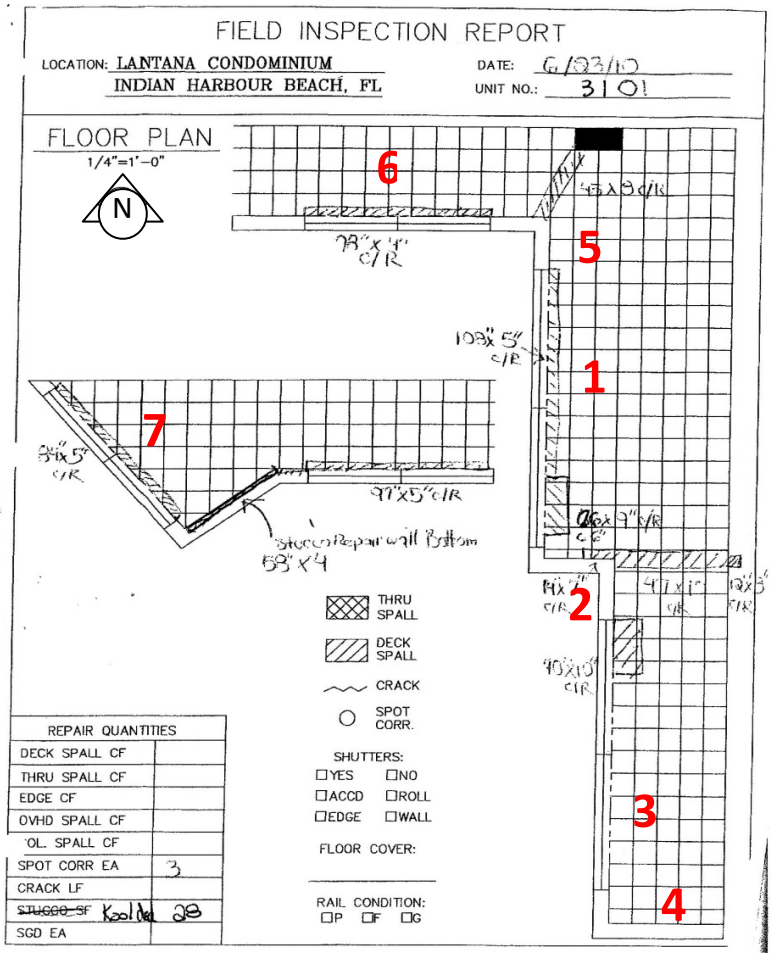
  - greatest amount of damage occurs on floors 2 and 3

Figure 3. CRI Report

Damage/Repair Areas (SF) for Unit 3101 at Locations (1-7)

1 = 7.9
2 = 3.26
3 = 0.28
4 = 0
5 = 2.5
6 = 2.2
7 = 11.86

Total 28. SF



1 - Large Slider (LS) PTC A
2 - Inside Corner (IC) PTC A
3 - Small Slider (SS)
4 - End Wall (EW)
5 - Outside Corner (OC) PTC A
6 - Outside Slider Facing North or South (OSN/S) PTC B
7 - Outside Angle Sliders (OAS)

Figure 4. Outer Decks Analysis for 2010 CRI Data

Comparison of Total Damage areas (SF)/per Location for 32 North/South Outer Units

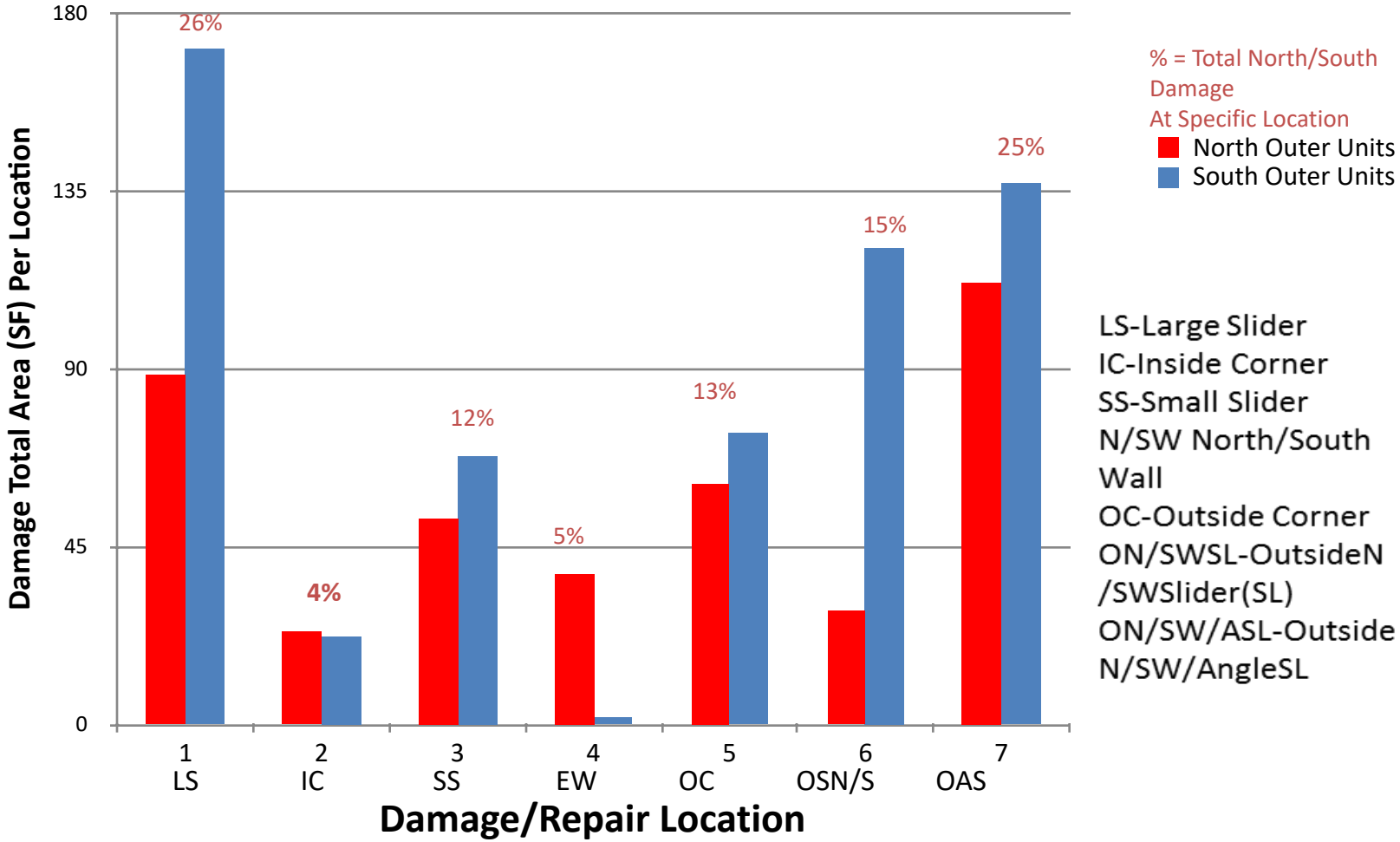


Figure 5. Outer Decks Analysis for 2021 MBV Data

Comparison of Total Potential Damage Area (SF)/per Location for 32 North/South Outer Units (same units in CRI 2010 Study)

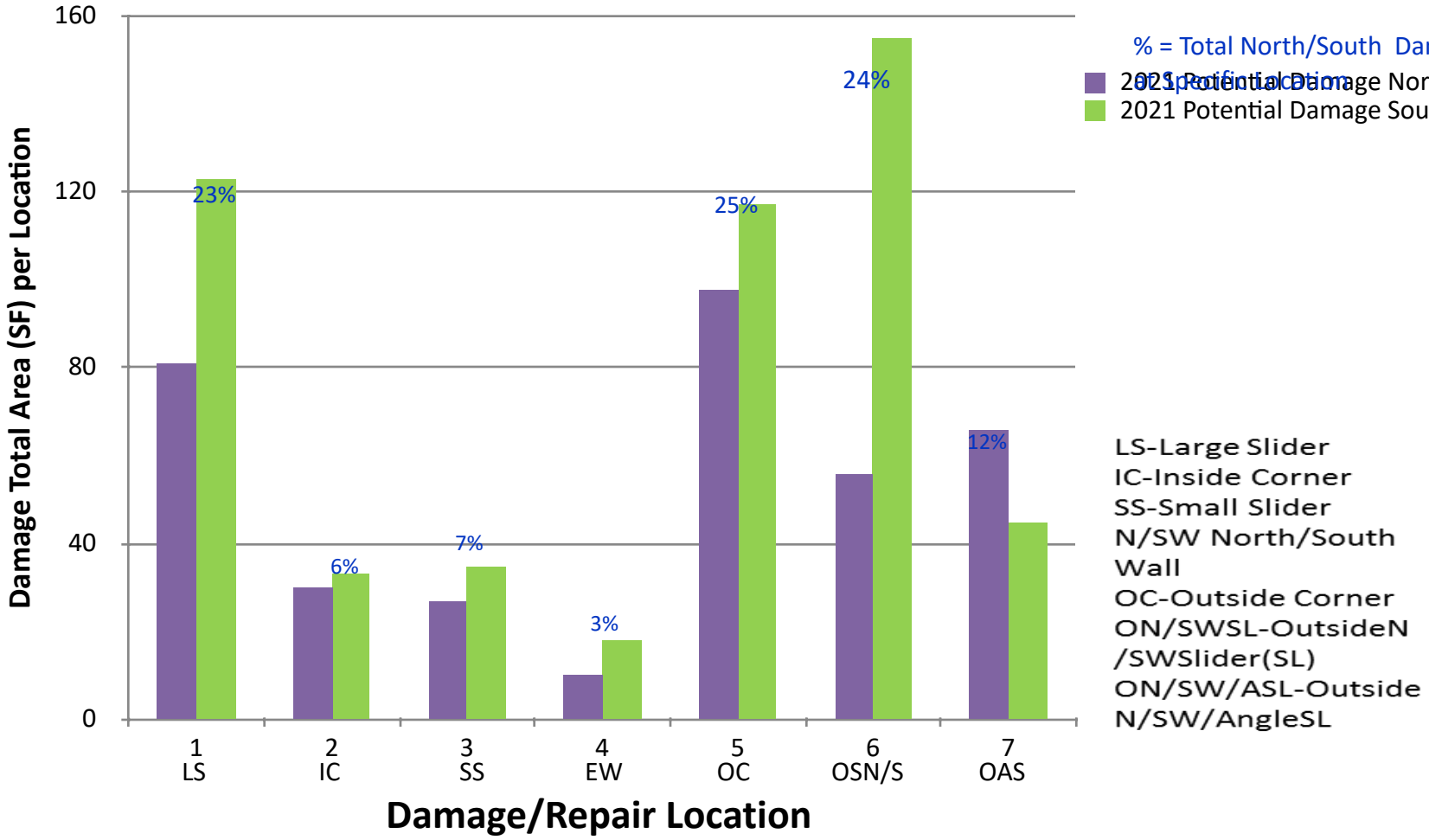


Figure 6. CRI 2010

North/South Outer Units Stress Areas per Floor

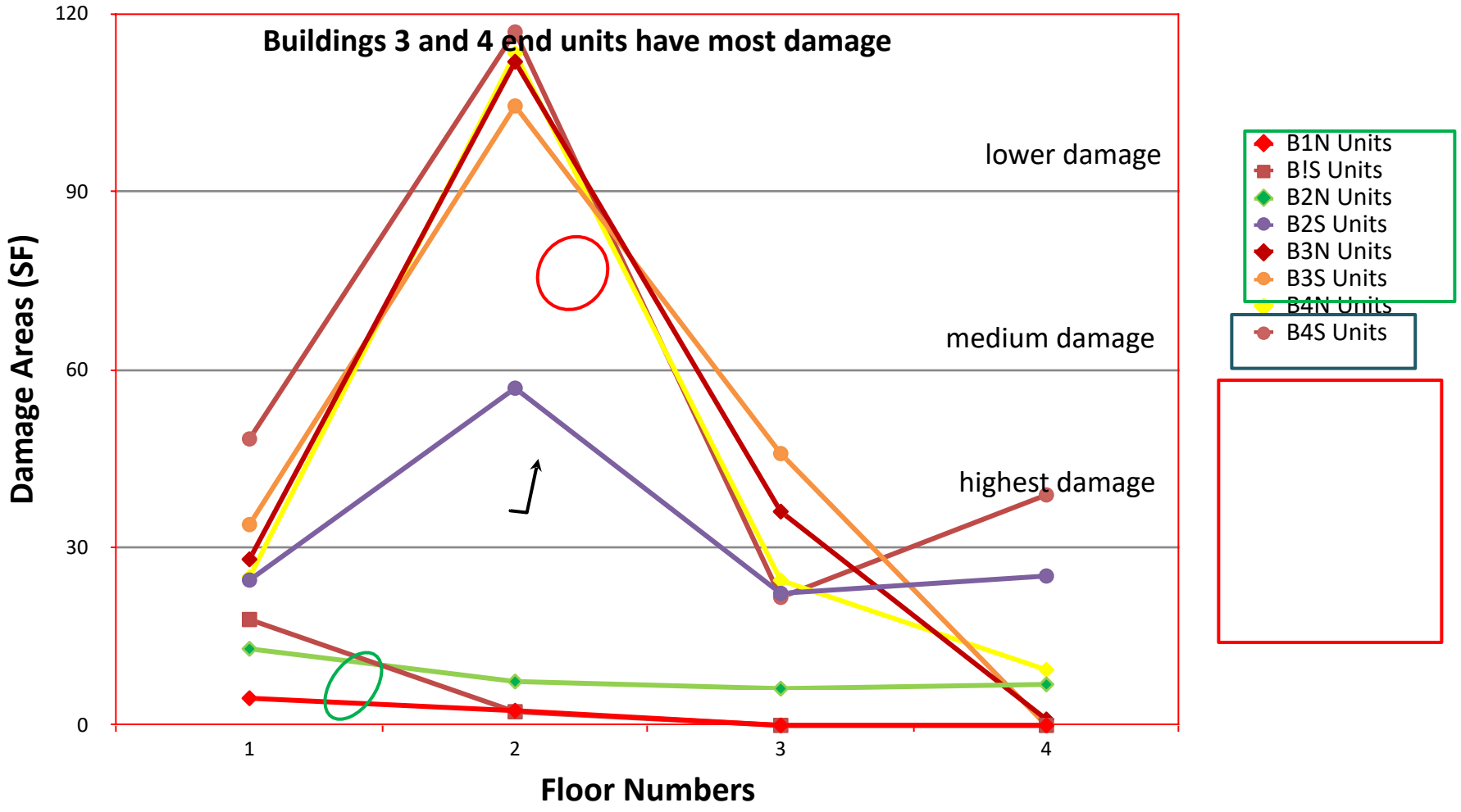
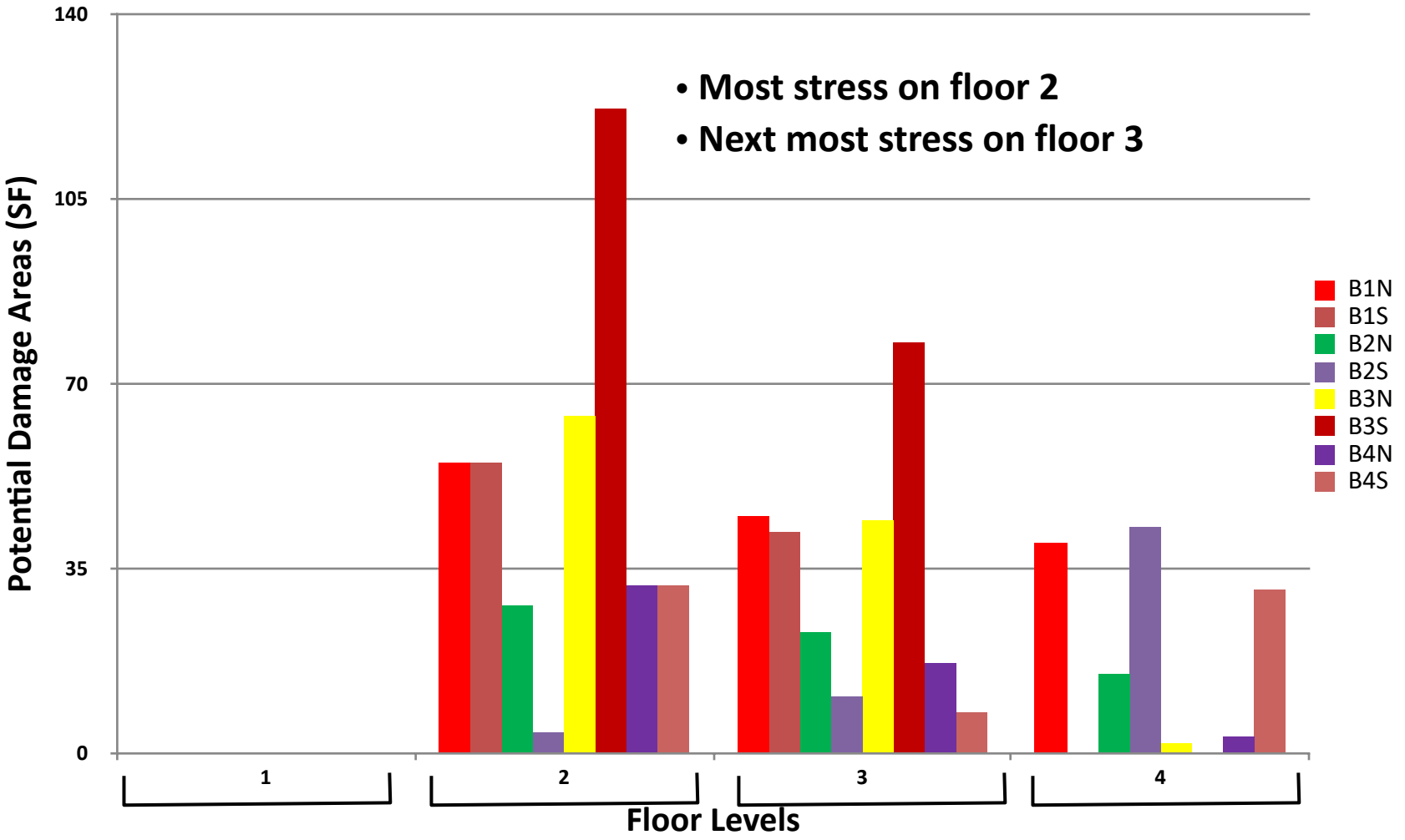


Figure 7. MBV 2021

North/South Outer Units Stress Areas per Floor



Summary of Actual/ Damage/Repair & Potential Damage of Outer Units

- A typical deck floor plan for an outer unit is shown in Figure 3
  - based on CRI and MBV inspections, greatest stress was found at 7 critical locations noted in Figure 3
- Based on 2010 CRI damage/repair results, Figure 4 shows greatest damage occurred almost exclusively at these 7 critical locations
  - statistically, South units had more damage than North units
- Total damage for North and South outer units for all four building was 26% at location 1-LS (Large Glass Slider)
  - total damages at locations 5-OC (outside Corner), 6-OSN/S (Outside Slider Facing North or South), & 7-OAS (Outside Angle Sliders) were 13%,15% and 25% respectively
- In Figure 5 it is seen that greatest damage occurred at same locations for both South and North units, but with less damage in North units
- Total potential damage for all North/South units for all four buildings were 23% at Location 1-LS , 25% at Location 5-OC, 24% at Location 6-OSN/S and 13% at Location 7-OAS
- Figures 6 (CRI) and 7 (MBV) confirm: greatest amount of damage or potential problems happen on second floors in all 4 buildings

Analysis, Identification and Listing of Most Vulnerable Outer Units

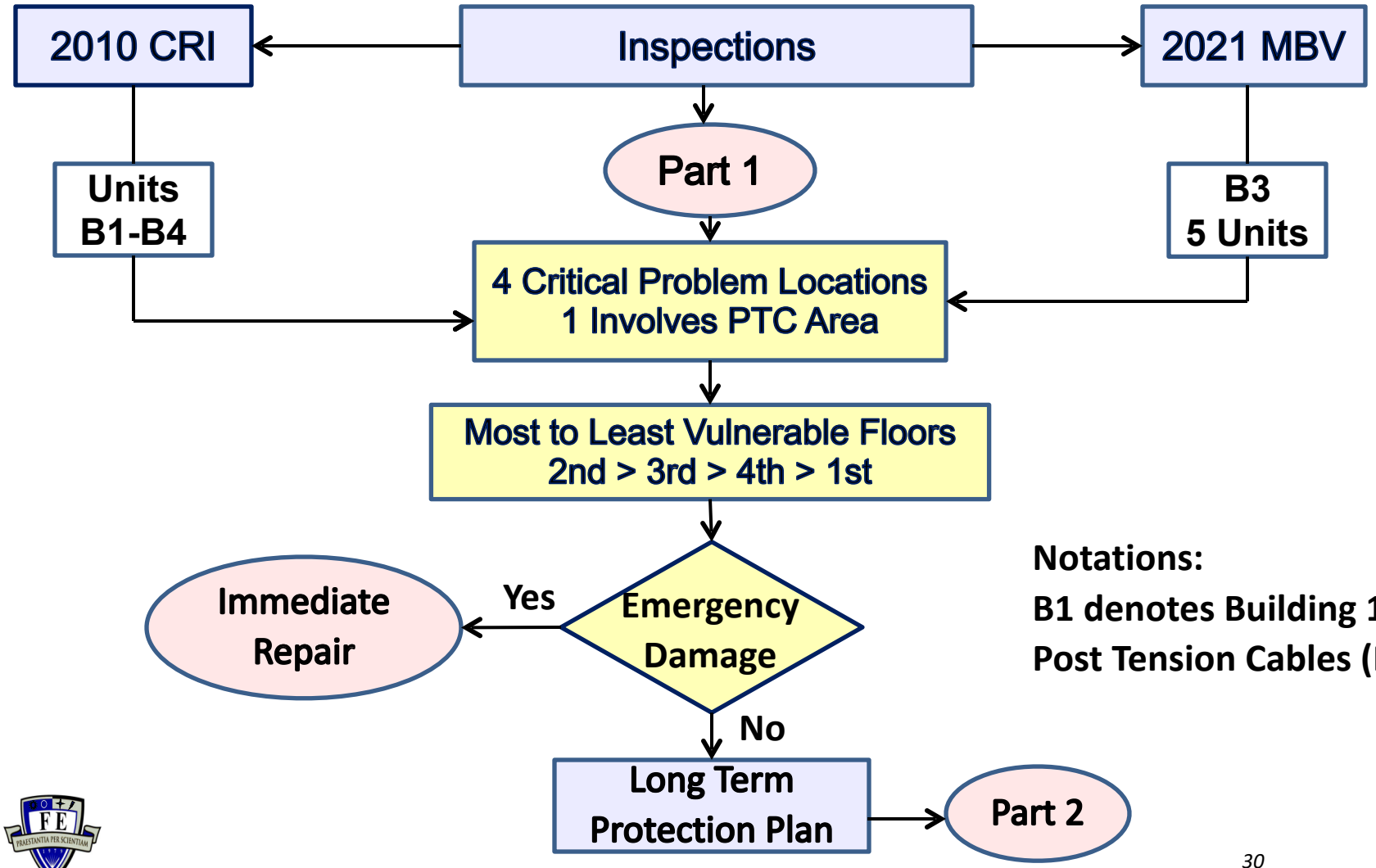
- As a general guideline, most vulnerable outer unites are those that have serious concrete or mechanical problem areas (10-30 SF) near North/South/East/West PTC systems
- These units should be repaired first with long term protection and maintenance
- 2021-2022 MBV test results for all outer units will be first to be repaired in 2022
- A complete testing/repair plan and long term protection options will be presented in Part 2 report

Analysis Overview

- **2010 CRI data and 2021 MBV data will be reviewed in two parts**
  - **outer (end) units were more vulnerable and are reviewed first**
  - **inner units (xx02, xx03, xx04 and xx05) are reviewed next**

Figure 8. Outline

Part 1: Inner Unit Problem Area Analysis
Part 2: Long Term Protection Plan



Notations:

B1 denotes Building 1

Post Tension Cables (PTC)

Analysis of 2010 CRI Damage/Repair
64 Inner Units

- Total 2010 CRI damage/repair areas (SF) for 64 inner units of all four buildings are shown in Table 10
- Largest to smallest damage amount occurred in B4 > B3 > B2 > B1
- Floor plan of a typical inner unit (Figure 9) defines 4 critical locations (1-4) at which CRI major damages/repairs occurred
- Tables 10 - 15 list total damage areas (SF) and critical locations from highest (most vulnerable) to lowest values for B4, B3, B2 and B1
- Tables 10-15 are contained in Appendix B
- Figure 10 is a graphical representation of Tables 10 - 14
- Damage occurring on all floors for all inner units and buildings are shown in Figures 11 and 12
  - most damage (SF) was found on floors 2 and 3

Analysis of CRI Damage/Repair
64 Inner Units

- 1,160 SF of damage/repair areas were done by CRI 2010, 64 inner units (all buildings), as shown in Table 12
- Rank damage/repair order for all buildings is: B4 > B3 > B2 > B1
- Total damage areas are shown in Tables 13 - 16 by critical locations, and arranged from highest (most vulnerable) to lowest values for each building (Appendix B)
- B4 (table 11) had a total of 303 SF in location 1-LS (Large Glass Sliders), 19 SF in location 2-IC Inside Corner), 122 SF in 3-SS Small Glass Slider) and 4 SF in 4-EW (End Wall)
- B3 (table 12) had a total of 239 SF in location 1-LS, 32 SF in location 2-IC, 68 SF in 3-SS and 90 SF in 4-EW
- B2 (Table 13) had a total of 170 SF in location 1-LS, 34 SF in location 2-IC, 39 in 3-SS and 90SF in 4-EW
- B1 (Table 14) had a total of 6 SF

(Copy of) Table 10. Total Damage/Repair Areas (SF)
64 Inner Units, 2010 CRI

2010 CRI Inner Units	Total Damage/Repair Areas (SF)
Building 4	448
Building 3	429
Building 2	277
Building 1	6

Notes:

- **There are twice as many inner units as outer units, 64 versus 32**
- **Total damage on inner units was 1,160 SF for average of 18 SF/inner unit**
- **Total damage on outer units was 995 SF for average of 31 SF/outer unit**

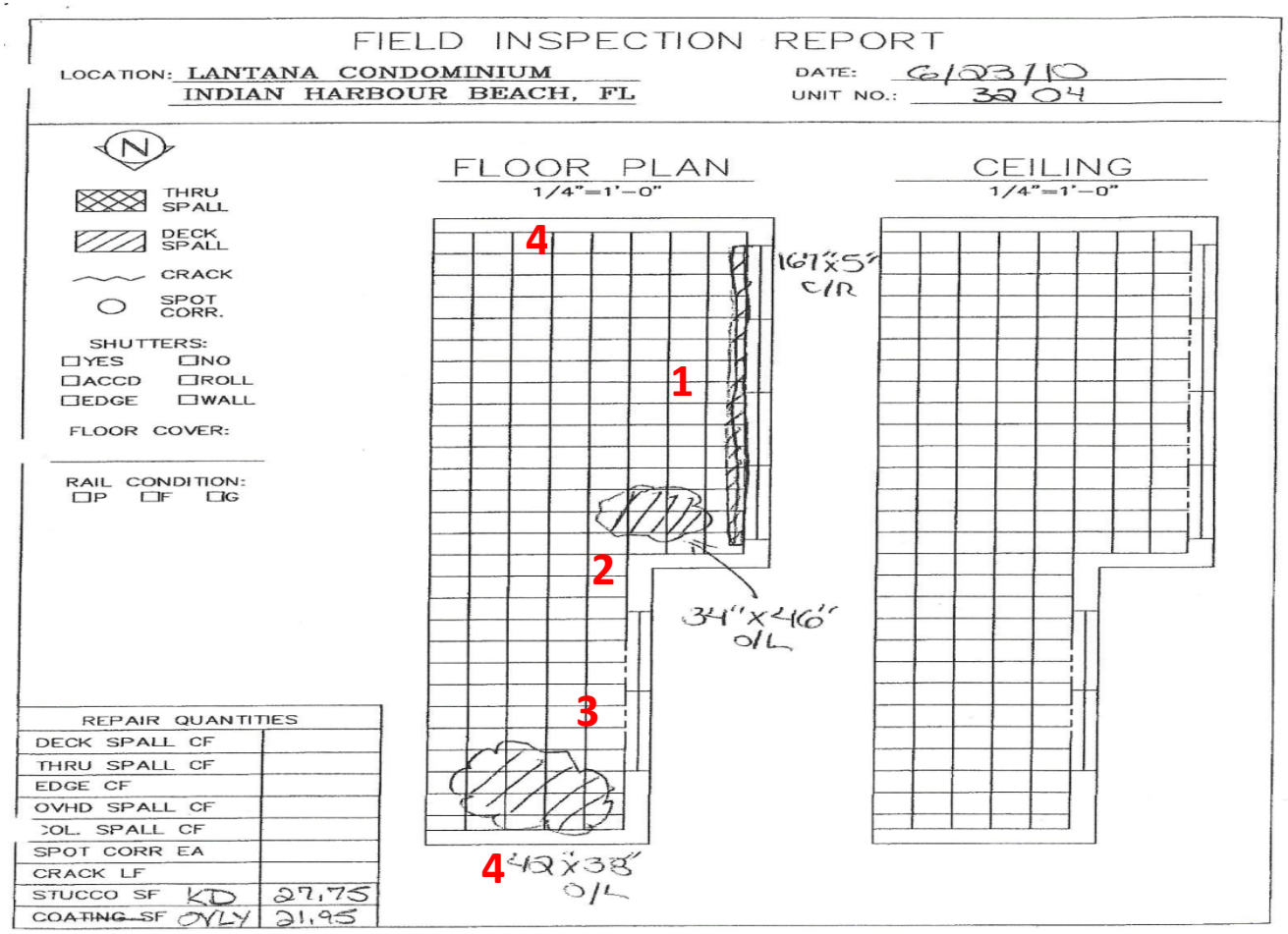
Comprehensive Analysis Review

CRI Field Inspection Reports of 64 Inner Units

- Figure 9 is a CRI deck floor plan for inside Unit 3204
- Report gives each problem area location, Kool Deck (KD) and Overlay (OL) for this unit, which had damage/repair operations
- CRI measured all damaged areas at each location, but provided only a single repair quantity of 28 square feet (SF) for this unit
- We need to know which deck locations had an individual damage/ repair area (SF per each specific location on each unit deck), not just total area summation for entire unit deck
- 4 individual locations are designated for all inner decks at which localized damage/repair (KD and OL) events occurred
  - Large Glass Sliders (LS), near PTC "A" north/south run
  - Inside Corner (IC)
  - Small Glass Slider (SS), and
  - North (N) and South (S) Walls (EW)

Figure 9. Inner Unit Damage/Repair Areas

Inner Unit 3204, Locations 1 - 4



1-Large Slider (LS)
PTC A
2- Inside Corner (IC)
PTC A
3-Small Slider (SS)
4-End Walls (EW)
PTC A
East/West PTC Lines

Comprehensive Analysis
CRI Field Inspection Reports 64 Inner Units

- **For unit 3204, specific damage area/location are:**

  (1) 7.90 (SF)

  (2) 3.26 (SF)

  (3) 0.28 (SF)

  (4) 0.00 (SF)

  (5) 2.50 (SF)

  (6) 2.20 (SF)

  (7) 11.86 (SF)

  28. (SF) as reported

- **All CRI damage/repair operations for inner units were identical to CRI outer unit operations**
- **Water penetration of paint into Kool Deck stucco caused cracks and debonding from concrete, and which required removal, new stucco and repainting**
- **This describes all problems which required attention**

Figure 10. Graphical Analysis of Tables 10 - 14

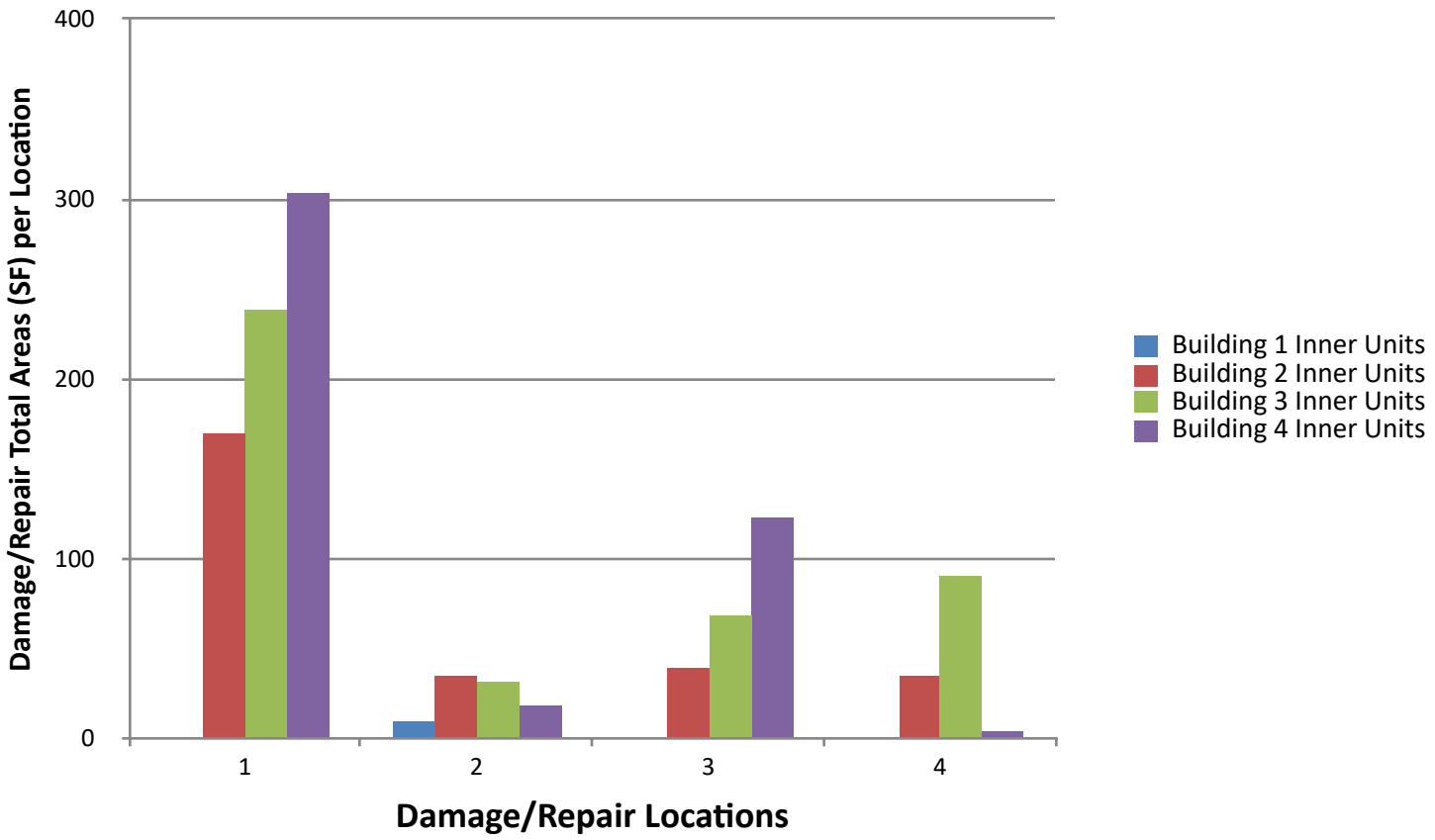
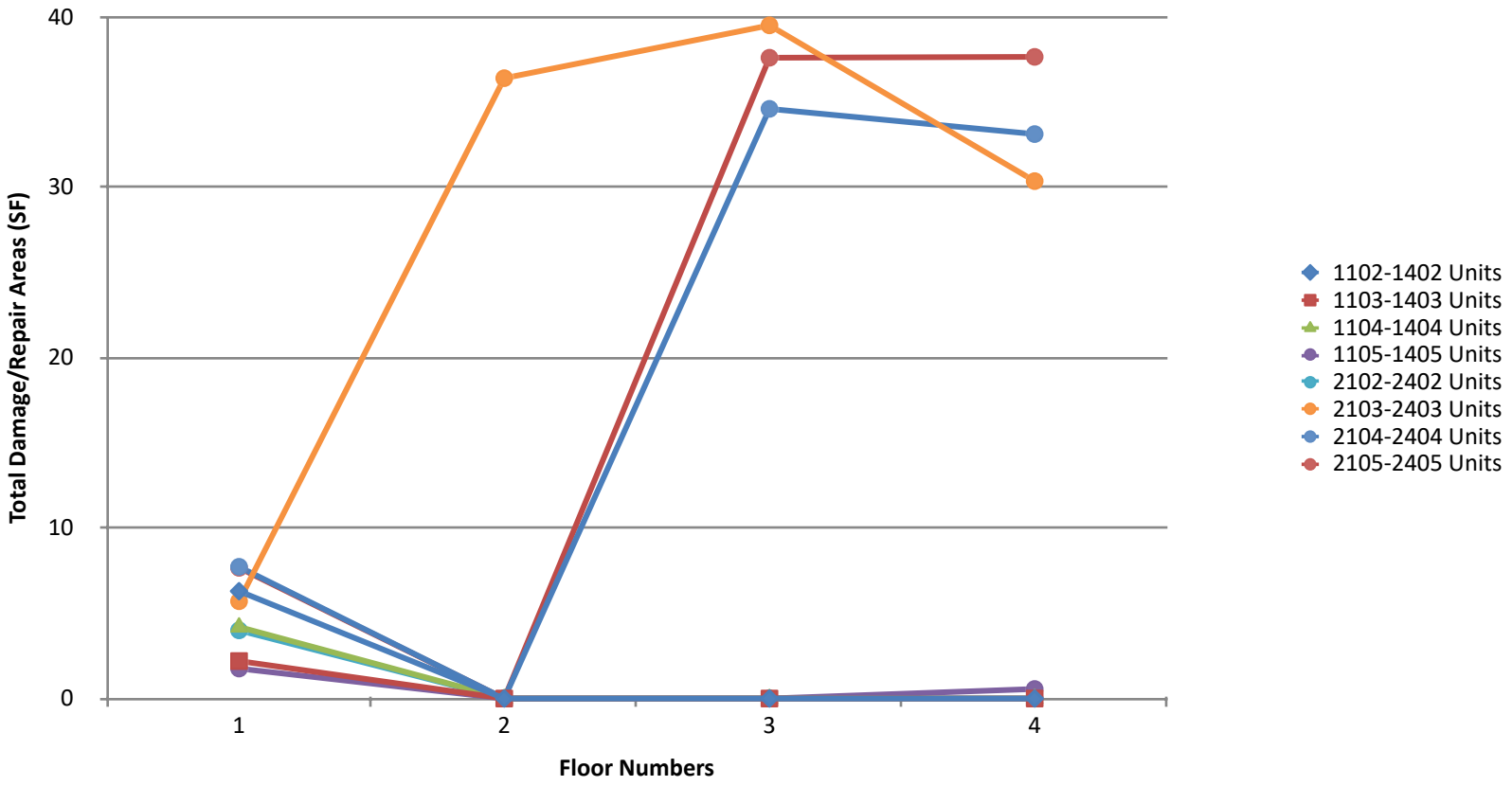
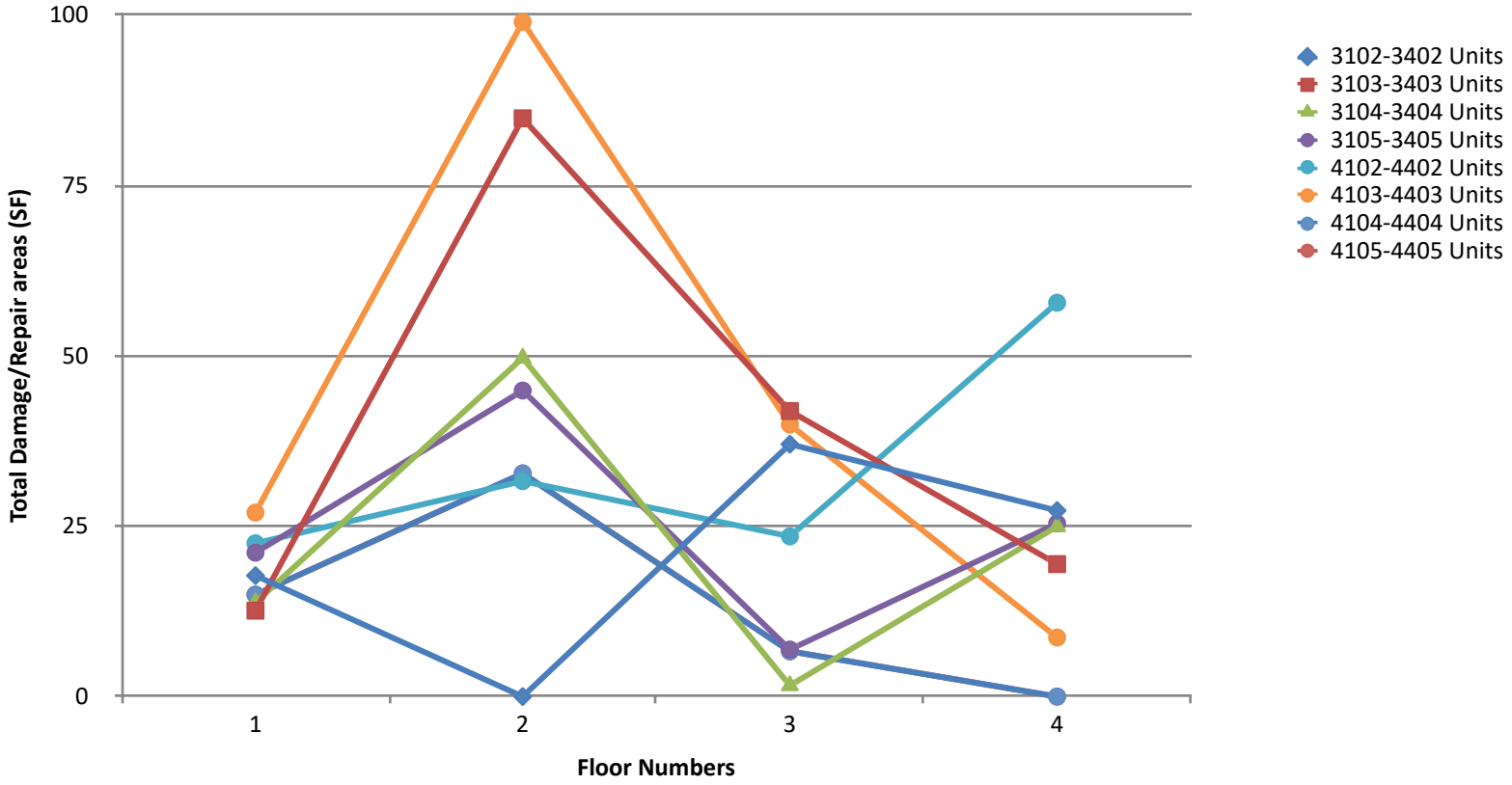


Figure 11.



Graphical Analysis of Total Damage/Repair Areas (SF) for Each Floor of 16 Inner Units of Buildings 1 and 2

Figure 12.



Graphical Analysis of Total Damage/Repair Areas (SF) for Each Floor of 16 Inner Units of Buildings 3 and 4

Analysis of CRI Damage/Repair of 64 Inner Units (continued)

- Figure 11 is a graphical representation of Tables 11 - 14
- Figures 11 and 12 show amount of damage occurring on all floors for all inner units and buildings
  - Floors 2 and 3 had most damage
- B4 floor 2 - 179 SF, Floor 3- 120 SF, floor 1- 82 SF and floor 4- 67 SF
- B3 floor 2 - 154 SF, floor 3- 117 SF, floor 4- 91 SF and floor 1-67 SF
- B2 floor 3 - 112 SF, Floor 4- 104 SF, floor 2-35 SF, Floor 1-26 SF
- B1 floors 1- 46 SF
- Table 15 contain a direct comparison of same units damaged/repaired by CRI and inspected by MBV (Table 15 is listed in Appendix B)
  - CRI problem areas had total a total value of 105 SF (locations 1, 2 and 3) while MBV total values were equal (105 SF) in locations 1, 3 and 4

Summary of Material Failures Based Primarily on CRI & MBV Analysis of Lantana Decks (Appendix B)

- **CRI damage/repair efforts on 64 inner units showed greatest amount of building damage in following order: B4(448 SF, 39%) > B3(429SF, 37%) > B2(277 SF, 24%) > B1(6 SF) resulting in total damage/repairs of 1,160 SF**
- **Thirty three (33) of 64 inner units had damages (total) greater than 10 SF in 4 critical locations and thus designated as most vulnerable**
- **The major critical locations are as follows: B4 1, LS PTC line A (303 SF, 68%), 2, IC PTC line A (19 SF, 4%), 3 SS (122 SF, 27%)**
- **B3 1-LS PTC line A (229 SF, 56%), 2-IC PTC line A (32 SF, 7%), 3-SS (68 SF, 16%) and 4 EW (90 SF, 21%)**
- **B2 1-LS PTC line A (170 SF, 61%), 2-IC PTC line A (34SF, 12%), 3-SS (39 SF, 15%) and 4-EW (34 SF, 12%)**
- **B1 (6 SF)**
- **2nd and 3rd floors had most damage: B4 -2 (179 SF, 40%), B3-2 (154 SF, 36%) and B2-3 (112 SF, 40%)**
- **The same five inner units repaired by CRI in 2010 (105 SF) were the same units inspected by MBV in 2020 (105 SF potential damages)**
- **Critical locations for all five CRI units were 1-LS PTC line A (79 SF, 75%), 2-IC (12 SF, 11%) and 3-SS (14 SF, 13%) [The same units for MBV were 1-LS PTC line A (38 SF, 36%), 3-SS (27 SF, 26%) and 4-EW (40 SF, 38%)]**

Appendix A

- **Tables 2 through 9 illustrate comparison of 2010 CRI Damage/Repair Results for 32 outer units with MBV Potential Damage Problem Areas for 24 outer units**

Table 2. B1 North Critical Locations Damage Comparisons
2021 MBV and 2010 CRI Damage (SF)

Building North Units	1 LS	2 IC	3 SS	4 EW	5 OC	6 OSN/S	7 OAS	MBV Total
1101	(No Data Requested on Floor 1 which has no PT cables)							
1201	9	11	7	0	11	6	11	55
1301	15	4	5	6	11	1	3	45
1401	0	1	0	0	11	0	28	40

Building North Units	1 LS	2 IC	3 SS	4 EW	5 OC	6 OSN/S	7 OAS	CRI Total
1101	0	2	0	0	2	1	1	6
1201	0	1	0	0	0	1	2	4
1301	0	0	0	0	0	0	0	0
1401	0	0	0	0	0	0	0	0

Table 3. B2 North Critical Locations Damage Comparisons
2021 MBV and 2010 CRI Damage (SF)

Building North Units	1 LS	2 IC	3 SS	4 EW	5 OC	6 OSN/S	7 OAS	MBV Total
2101	(No Data Requested on Floor 1 which has no PT cables)							
2201	6	0	2	1	11	8	0	28
2301	10	0	2	0	3	8	0	23
2401	0	2	0	0	2	11	0	15

Building North Units	1 LS	2 IC	3 SS	4 EW	5 OC	6 OSN/S	7 OAS	CRI Total
2101	4	2	3	0	1	3	0	13
2201	0	0	0	7	0	0	0	7
2301	3	0	0	0	0	3	0	6
2401	0	0	0	0	0	4	3	7

Table 4. B3 North Critical Locations Damage Comparisons
2021 MBV and 2010 CRI Damage (SF)

Building North Units	1 LS	2 IC	3 SS	4 EW	5 OC	6 OSN/S	7 OAS	MBV Total
3101	(No Data Requested on Floor 1 which has no PT cables)							
3201	26	4	5	0	28	1	0	64
3301	10	5	1	1	7	11	9	44
3401	0	0	0	0	0	2	0	2

Building North Units	1 LS	2 IC	3 SS	4 EW	5 OC	6 OSN/S	7 OAS	CRI Total
3101	8	3	1	0	2	2	12	28
3201	38	10	3	27	33	0	0	111
3301	1	0	0	0	10	0	25	36
3401	0	0	0	0	0	2	0	2

Table 5. B4 North Critical Locations Damage Comparisons
2021 MBV and 2010 CRI Damage (SF)

Building North Units	1 LS	2 IC	3 SS	4 EW	5 OC	6 OSN/S	7 OAS	MBV Total
4101	(No Data Requested on Floor 1 which has no PT cables)							
4201	3	2	4	0	11	8	4	32
4301	2	1	0	0	3	0	11	17
4401	0	0	1	2	0	0	0	3

Building South Units	1 LS	2 IC	3 SS	4 EW	5 OC	6 OSN/S	7 OAS	CRI Total
4101	12	3	2	0	3	0	5	25
4201	0	0	35	0	1	13	64	113
4301	19	0	0	0	0	3	0	22
4401	0	3	0	4	0	1	2	10

Table 6. B1 South Critical Locations Damage Comparisons
2021 MBV and 2010 CRI Damage (SF)

Building South Units	1 LS	2 IC	3 SS	4 EW	5 OC	6 OSN/S	7 OAS	MBV Total
1106	(No Data Requested on Floor 1 which has no PT cables)							
1206	63	15	28	7	35	7	0	155
1306	14	0	5	3	0	18	2	42
1406	0	0	0	0	0	0	0	0

Building South Units	1 LS	2 IC	3 SS	4 EW	5 OC	6 OSN/S	7 OAS	CRI Total
1106	1	3	0	0	2	10	3	19
1206	2	0	0	0	0	0	0	2
1306	0	0	0	0	0	0	0	0
1406	0	0	0	0	0	0	0	0

Table 7. B2 South Critical Locations Damage Comparisons
2021 MBV and 2010 CRI Damage (SF)

Building South Units	1 LS	2 IC	3 SS	4 EW	5 OC	6 OSN/S	7 OAS	MBV Total
2106	(No Data Requested on Floor 1 which has no PT cables)							
2206	0	0	0	0	0	4	0	4
2306	0	0	0	1	1	9	0	11
2406	5	1	0	0	6	31	0	43

Building South Units	1 LS	2 IC	3 SS	4 EW	5 OC	6 OSN/S	7 OAS	CRI Total
2106	5	2	4	0	3	2	8	24
2206	18	0	12	0	0	12	15	57
2306	7	0	16	0	0	0	0	23
2406	0	4	4	0	0	17	0	25

Table 8. B3 South Critical Locations Damage Comparisons
2021 MBV and 2010 CRI Damage (SF)

Building South Units	1 LS	2 IC	3 SS	4 EW	5 OC	6 OSN/S	7 OAS	MBV Total
3106	(No Data Requested on Floor 1 which has no PT cables)							
3206	20	3	0	1	10	45	43	122
3306	12	3	0	0	43	20	0	78
3406	0	0	0	0	0	0	0	0

Building South Units	1 LS	2 IC	3 SS	4 EW	5 OC	6 OSN/S	7 OAS	CRI Total
3106	14	1	4	0	1	6	9	35
3206	25	3	4	0	21	26	29	108
3306	0	0	0	0	33	6	7	46
3406	0	0	0	0	0	0	0	0

Table 9. B4 South Critical Locations Damage Comparisons
2021 MBV and 2010 CRI Damage (SF)

Building South Units	1 LS	2 IC	3 SS	4 EW	5 OC	6 OSN/S	7 OAS	MBV Total
4106	(No Data Requested on Floor 1 which has no PT cables)							
4206	6	9	2	5	3	7	0	32
4306	1	0	0	0	1	6	0	8
4406	2	2	0	1	18	8	0	31

Building South Units	1 LS	2 IC	3 SS	4 EW	5 OC	6 OSN/S	7 OAS	CRI Total
4106	12	2	8	0	3	8	16	49
4206	79	2	8	2	10	34	32	167
4306	8	6	4	0	0	0	4	22
4406	6	0	5	0	6	0	11	28

Appendix B

- **Tables 10-14 document historical 2010 CRI Damage/Repair Results for 64 most vulnerable inner units having ≥ 10 SF damage (Buildings 1 - 4)**
- **Table 15 contains a direct comparison of MBV B3 inner unit potential problem areas with CRI B3 actual damage/repair areas**

Table 10. Total Damage/Repair Areas (SF)
64 Inner Units, 2010 CRI

2010 CRI Inner Units	Total Damage/Repair Areas (SF)
Building 4	448
Building 3	429
Building 2	277
Building 1	6

Note:

- **There are twice as many inner units as outer units, 64 versus 32**
- **Total damage on inner units was 1,160 SF for average of 18 SF/inner unit**
- **Total damage on outer units was 995 SF for average of 31 SF/outer unit**

Table 11. B4 Most Vulnerable 8 2010 Inner Units
with damage ≥ 10 SF total or in critical locations

Inner Units	CRI Total Area (SF)	1 LS	2 IC	3 SS	4 EW	Floor
4204	99	80	0	19	0	2
4402	58	58	0	0	0	4
4304	40	30	0	10	0	3
4205	33	9	0	24	0	2
4202	32	18	6	8	0	2
4303	32	29	0	3	0	3
4104	27	15	0	12	0	1
4302	23	20	0	3	0	3

Table 11. (cont.) B4 Most Vulnerable 5 2010 Inner Units
with damage ≥ 10 SF total or in critical locations

Inner Units	CRI Total Area (SF)	1 LS	2 IC	3 SS	4 EW	Floor
4102	24	13	4	7	0	1
4305	22	5	0	17	0	3
4103	16	9	4	3	0	1
4203	15	12	0	3	0	2
4105	15	5	5	5	0	1
4404	9	0	0	5	4	4
4303	3	0	0	3	0	3
4405	0	0	0	0	0	4

Table 12. B3 Most Vulnerable 8 2010 Inner Units
with damage ≥ 10 SF total or in critical locations

Inner Units	CRI Total Area (SF)	1 LS	2 IC	3 SS	4 EW	Floor
3203	70	42	3	25	0	2
3302	65	34	0	1	30	3
3204	48	6	22	0	20	2
3303	43	3	0	0	40	3
3205	36	28	0	8	0	2
3404	27	26	0	1	0	4
3405	25	25	0	0	0	4
3105	22	13	4	5	0	1

Table 12. (cont.) B3 Most Vulnerable 5 2010 Inner Units
with damage ≥ 10 SF total or in critical locations

Inner Units	CRI Total Area (SF)	1 LS	2 IC	3 SS	4 EW	Floor
3403	20	20	0	0	0	4
3402	19	0	0	19	0	4
3102	18	13	0	5	0	1
3104	14	14	0	0	0	1
3103	13	6	3	4	0	1
3305	7	7	0	0	0	3
3304	2	2	0	0	0	3
3202	0	0	0	0	0	2

Table 13. B2 Most Vulnerable 7 2010 Inner Units
with damage ≥ 10 SF total or in critical locations

Inner Units	CRI Total Area (SF)	1 LS	2 IC	3 SS	4 EW	Floor
2303	40	40	0	0	0	3
2305	38	38	0	0	0	3
2405	38	13	13	12	0	4
2203	36	36	0	0	0	2
2304	34	0	0	0	34	3
2404	34	17	17	0	0	4
2403	31	17	0	14	0	4

Table 13. (cont.) B2 No Vulnerable 2010 Inner Units
with damage ≥ 10 SF total or in critical locations

Inner Units	CRI Total Area (SF)	1 LS	2 IC	3 SS	4 EW	Floor
2105	8	0	2	6	0	1
2104	8	4	0	4	0	1
2102	4	0	2	2	0	1
2103	6	5	0	1	0	1
2202	0	0	0	0	0	2
2302	0	0	0	0	0	3
2402	0	0	0	0	0	4
2204	0	0	0	0	0	2
2205	0	0	0	0	0	2

Table 14. B1 No Vulnerable 2010 Inner Units
with damage ≥ 10 SF total or in critical locations

Inner Units	CRI Total Area (SF)	1 LS	2 IC	3 SS	4 EW	Floor
1102	5	1	2	2	0	1
1103, 1104,1105	0	0	0	0	0	1
1202, 1203, 1204, 1205	0	0	0	0	0	2
1302, 1303, 1304, 1305	0	0	0	0	0	3
1405,	1	1	0	0	0	4
1402, 1403, 1404	0	0	0	0	0	4

Table 15. Direct Comparison
(a) MBV 2021 B3 Inner Unit Problem Areas
(b) CRI 2010 B3 Inner Unit Damage/Repair Areas

MBV Inner Units	Total Area (SF)	1 LS	2 IC	3 SS	4 EW	CRI Inner Units	Total Area (SF)	1 LS	2 IC	3 SS	4 EW
3202	0	0	0	0	0	3202	0	0	0	0	0
3205	31	17	0	14	0	3205	36	28	0	8	0
3303	33	28	5	0	0	3303	43	3	0	0	40
3305	21	14	7	0	0	3305	7	7	0	0	0
3402	20	20	0	0	0	3402	19	0	0	19	0