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MASTER PLAN

for

JAMAICA ROYALE TOWER II ASSOCIATION, INC.

5830 Midnight Pass Road
Sarasota, Florida 34242

Prepared by:
LCM Engineering, PLLC
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PROJECT DESCRIPTION:

Jamaica Royale Tower II Association, Inc. (Association) is a residential condominium association located at 5830 Midnight Pass Road, Sarasota, Florida. The building is an eight-story structure with seven residential floors over parking. There are six condominium living units on each floor making a total of 42 units. The building was constructed circa 1974.

The Association's common components include the building, electrical mains, plumbing mains, doors and windows, two elevators, a fire alarm system, fire pumps, jockey pumps, covered walkways, pavers, curbs, asphalt, trash rooms, a standby generator, roofing and other components commonly provided as part of a high-rise condominium building of this time period.

SCOPE of SERVICES

LCM Engineering, PLLC (LCM) was contracted to develop a master plan for repairs, renovation or replacement of its common elements that the Association should address in the near future. The master plan is to include time lines for the work, and estimated construction costs.

LCM made site visits to observe the common elements. All observations were performed on-site and were visual in nature only. Except where specifically stated otherwise, no destructive testing or analysis was used to prepare this Master Plan. LCM utilized audio sounding equipment, hammer pounding, binoculars, telephoto cameras, infrared cameras, and field measurements as needed to obtain quantities of work.

Elevated Walkways and Balconies (Photos 1 & 2)

The walkways (photos 1 &2) are constructed of cantilevered open web steel joists, fluted metal floor decking and about 3-inches of concrete. The walking surfaces were

waterproofed circa 2004 with two layers of liquid applied polyurethane and a fiber reinforcing matt between the layers. The walkways are covered with carpet.

The balconies are diverse, with enclosures, carpet, tile or both. There are balconies with slider enclosures and individual walls of glass. There are decorations, blinds and shutters hanging on the stucco walls. Thirty-four (34) balconies have carpet on the exterior, four (4) have tile on the exterior. Twenty-four (24) of the balconies have enclosures and five (5) of these balconies have tile on the interior. LCM was denied access to three (3) units during our site visit. Unit #501 has no waterproofing, tile or carpet on the balcony or the enclosure. Two units on the 8th floor have glass wall enclosures covering a portion of the balcony.

On many balconies, we observed substantial mold in the carpet and under the guardrails. These areas, where rain water drips from the bottoms of the guardrails, remains wet and damp longer than other areas of the balconies.

Walkway Carpeting (Photos 3 to 6):

The carpet is ragged, frayed and has separated from the waterproofing in many areas. The carpet is often wet for long periods. This has resulted in the carpet's blue color bleeding into the waterproofing and caulk on the walls, the door sealant and areas of the slab edge. The constant moisture is weakening the waterproofing seal against the walls and the slab edge. Evidence of sand, dirt and mold were observed where the carpet and waterproofing were separated.

LCM noted that the constant moisture from the carpet is causing the lower half of the metal door frames to rust. The moisture, from the carpets may also be blamed for the severity of the rusting window frames.

LCM recommends the Association remove the carpet. Removal of the carpet is not necessary, but its current condition degrades the aesthetics of the building. If the Association decides to replace the carpet, we recommend a higher quality carpet with better exterior weather performance be considered.

The cost to replace all of the walkway carpeting with like kind materials, on all of the walkways, is estimated at $175,000.

Balcony Carpeting (Photos 11 to 13)

The carpet on most of the balconies is ragged, frayed and very moldy. There are spots worn all the way through the carpet on many of the balconies. The carpet is often wet for long periods, like that on the walkways and has bled into the waterproofing and caulk on the walls, the balcony sliding glass door caulk and the slab edge waterproofing.

The carpet does not have to be removed. However, like LCM pointed out on the walkways, the carpet moisture and deterioration will continue to worsen and will compromise the integrity and life span of the waterproofing. This would increase the concrete damage and end up costing more to repair. At this time the estimate for replacing the carpet on all the balconies is $260,000.

Walkway Waterproofing (Photo 5)

The existing waterproofing system was installed circa 2004, and consists of two layers of liquid applied polyurethane, with an reinforcing mesh installed between the two layers. That system was installed on the horizontal surfaces of the walkways and balconies, up the vertical walls about 4-inches, and down the outer faces of the walkways and balcony edges about 4-inches.

The waterproofing has performed well, but is starting to show signs of deterioration. The waterproofing is peeling from the walls and the slab edges in many areas, and has been discolored by bleeding of the carpet dye.

The deteriorated areas of the waterproofing will continue to expand if not repaired or replaced. This will allow chlorides and other deleterious materials to infiltrate into the concrete, which eventually will substantially increase the cost of concrete repairs.

At this time it is estimated to cost $180,000 to remove and replace the waterproofing on the walkways.

Balcony Waterproofing (Photos 17, 22, 60)

The waterproofing is bubbled, torn and/or peeling on many of the balcony slab edges. There are many areas around the handrail post pockets where the waterproofing is damaged and holding water. The waterproofing does not extend under all of the balcony sliding glass door enclosures.

The waterproofing does not have to be replaced. Eventually the compromised areas of the waterproofing are going to expand. The exposed concrete is going to allow chlorides and other concerns to infiltrate the concrete and cause further deterioration, requiring a large amount of necessary concrete repair, especially along the slab edges. LCM recommends the waterproofing be repaired or replaced within the next year or two. The cost estimates to remove and replace all of the waterproofing on the balconies, wall and slab edges is $255,000.

Waterproofing - Overview

Circa 2004, the RL James Company performed repairs, waterproofing and painting for the Association. LCM discussed the 2004 repair and waterproofing project with John Bascome who RL James' on-site supervisor for that project. John stated that all of the stucco ceilings at the balconies were removed in order to inspect and repair the underlying, hidden, structural system. In general, the structural steel open-web joists were in good condition. At numerous locations, the metal deck was severely rusted and deteriorated, and those elements were cut out and new matching metal deck was installed. Prior to installing new ceilings, the metal deck and joists were coated with an anti-corrosion paint system.

John stated that none of the ceilings were removed from the walkways, and no repairs were made to their underlying structural steel.

LCM removed access/observation openings at four locations. Three on balconies, and one at a walkway. Observations made at those openings confirmed the information provided by John. Very little new rust or corrosion was observed at the balconies. Rust and corrosion at the walkways was as expected for an un-waterproofed structure exposed to

rain from its construction through 2004, when it was waterproofed.

Overall, the waterproofing installed in 2004 has performed very well, and has protected the underlying structural steel. However, the waterproofing system has an estimated life of about 20 years, and, even though it appears to be in fair condition at this time, the Association should be prepared to replace this waterproofing within the next 5 to 7 years.

It is also important to note that the waterproofing system provides protection for the structural steel supporting the balconies and walkways. Intrusion of rain and salt spray into the balcony or walkway structures can result in severe and rapid corrosion and deterioration of the underlying supporting steel, causing a dangerous and unsafe hidden and unobservable condition. Thus, the Association must maintain the waterproofing system in good condition, and should develop detailed and mandatory instructions to unit owners of the importance of not damaging the waterproofing.

Walkway Handrails (Photos 7 to 10)

The handrails are in good condition. Some handrail fastener plates have missing or unsecured bolts. Many handrail post pockets and fastener plates have not been kept sealed, are allowing moisture to breach the waterproofing, and have caused the waterproofing to bubble and peel along the slab edge. If this continues, it could cause concrete spalling, and the dangerous condition of falling concrete.

LCM recommends the handrail post pockets and brackets be properly sealed. About 150 of the handrail post pockets and brackets along the walkways and at the balcony edges need to be sealed, at an estimated cost of about $7,500.

Balcony Handrails (Photo 32)

Although the handrails on the balconies need maintenance, they appear to be in good shape. There are a loose railings, missing fastener bolts, unsealed fastener plates and post pockets needing to be sealed.

LCM recommends these repairs be done sooner than later to mitigate any further damage

to the waterproofing and slab edge. The costs for these repairs is estimated to be $3,000.

Balcony Tile (Photos 14 to 16)

Four of the units have tile on the balconies. From what LCM could determine, the tiles appear to be installed on top of the waterproofing. Many of the balconies have tiles that are debonded and loose. Four (4) Units had tile in their enclosures. Not all of the enclosures showed the waterproofing going underneath the enclosed sliding glass door tracks or interior tile. LCM also found obvious signs of standing water on tiled balconies.

LCM did not include the enclosures or tile replacement costs in our estimate for removing and disposing of the tile on the balconies. LCM understands the enclosures and tile are an owner's costs. LCM does not see an immediate need to remove the tile and enclosures to install new waterproofing at this time. To remove the tile from the balcony decks, not the enclosures, is estimated at $8,000.

Concrete Repairs - Balconies Surfaces

Concrete damage under carpet is difficult to detect without sophisticated equipment. Concrete damage is detected by hammering on the concrete, but carpet masks the sounds returned by spalls and other concrete damage. Regardless, LCM hammered and made best efforts to find and locate damage on the walkways and balconies. Based on that testing, we believe no more than 5% of the elevated walkways and balconies are currently in need of concrete repairs.

LCM estimates these repairs at $50,000.

Concrete Repairs - Slab Edge Repairs (Photos 19 to 21, 23, 24, 62, 66)

The slab edges on the balconies are displaying more damage than those on the walkways. Many of the handrail post pockets and fastener plates have not been sealed correctly. Additionally there are fastener plates with loose or missing bolts. The waterproofing on the balcony has been compromised, allowing water to be trapped in bubbles beneath the waterproofed slab edges. Some of the bubbles have opened resulting in the waterproof

peeling away from the slab edge.

The balcony slab edge corners on the north side of stack six (6) and the east side of stack five (5) are cracked and could soon become a safety issue.

The slab edge located between Units #806 and #706 is separating and showing obvious signs of continued moisture. LCM recommends that this area be repaired as soon possible. The separation will increase and eventually will become a safety issue. The cost for repairing this particular area is estimated at $5,000.

LCM recommends the repairs on the other slab edges be completed in the next twelve months where the waterproofing is peeling and bubbling. Slab edge repairs are estimated at $20,000.

Concrete Repairs - Unit 401 (Photos #25-27)

Unit #401 has a column spalling on all four corners of the lower half. It is not an immediate structural or safety issue but the concrete will continue to crack and break away. The longer it is unrepaired the more damage to which the structural steel is exposed.

LCM recommends this repair be completed sooner than later. The estimated cost to repair the single column is $2,800.

Unit #401 has a beam with a structural crack. This crack is an indication of spalling and if left untreated, pieces of concrete will fall off. It is not a safety issue at this time however LCM recommends the beam repair be completed at the same time as the column. This will save costs. The estimate to repair the single beam is $2,000.

Concrete Repairs - Unit 501 (Photo 18)

This unit has no waterproofing on the balcony or the enclosed floor area. The balcony appears to have been painted sometime in the past. As a possible result of the concrete being exposed, the balcony exhibits more concrete damage than the other observed units.

LCM recommends the deck be repaired and waterproofed within the next 12 months. The concrete spalling will continue to grow and worsen the longer the balcony is left exposed. This will result in the repairs being more costly. LCM estimates the concrete repairs and waterproofing for this balcony to be between $5,000 and $15,000. The cost will be at the higher number if the sliding glass doors in Unit #601 have to be removed to make repairs.

Concrete Repairs - Beams (Photos 28 & 29)

A few of the beams throughout the balconies were found to have cracks, indicating possible spalling.

None of the cracks were a safety issue, at this time, but should be repaired in the next twelve months. LCM estimates to repair these beams will be $6,000.

Cantilevered Beams (Photos #30-31)

All 14 of the ends of the cantilevered beam ends at Stack-1 (on the west side of the building) have visible cracks. The location of the beams, being nearest the water, exposes them to the most salt spray, chlorides and windborne debris.

As long as materials are not falling off the building, this is not a safety issue, however the damage will continue to progress, and we recommend these repairs be made within the next 12 months. The estimated cost for repairing all 14 beams is $50,000.

Concrete Repairs - Other (Photos 33 & 34)

Other repairs to elevated concrete elements are needed at various location.

LCM did not observe any immediate safety issues.

LCM estimates 25% in concrete repairs to cost $300,000.

Stucco (Photos #35-41)

The stucco is cracked and debonded in numerous areas along the balconies. Penetrations in the stucco from general damage, nails, decorative elements, shutters and other items removed without sealing the holes are plentiful. The ceilings above the long side (east end) of the balconies have vertical cracks that run from one side to the other. On the 8th floor, there were larger areas of debonded stucco along the roof line and along the south west wall of the balconies.

LCM recommends any stucco issues be repaired during the next scheduled painting of the building. The estimate to repair the stucco is $120,000.

Sliding Glass Doors (Photos #42-44)

The balcony enclosures on floors 2 - 7 are installed with sliding glass doors. If repairs are necessary, carpet and tile must be removed, waterproofing replaced or repaired and these sliding glass doors and tracks may have to be removed. The cost estimate for removing and reinstalling the existing doors and enclosure system, per balcony, is $10,000 if the existing materials can be re-used, and $25,000 if new materials are required.

This estimate does not include upgrades to hurricane strength or the two glass enclosures the 8th floor.

EFIS (Photos #47-50)

EFIS (Exterior Insulation Finish Systems) is composed of acrylic layers applied over insulation board material such as polystyrene and mesh. EFIS is the decorative feature on the north wall of the 6th stack. EFIS has a history of allowing water to become trapped within the material. EFIS does not dry out in shaded areas. This situation allows for mold, mildew and other biologic agents. Cleaning of these materials is problematic.

EFIS is an architectural feature, for aesthetic use. Painting over the dirt, mold and algae may work but is often temporary. Stains, dirt, algae or mold will bleed through in a short amount of time.

Paint manufacturers have had some success in cleaning and coating these materials. But

as a llast resort, the Association have to remove and replace it entirely for an estimated cost of $50,000. There is no time constraint on this. The EFIS appears sound, just not very pleasant to look at. If it is removed when you contract to have the building painted, then the exposed areas would be part of the painting contract.

Lobby (Photos #45-46,79)

The existing elevator lobby was enclosed after the original building was constructed. The enclosure consists of aluminum store front systems at the north and south sides of the lobby. The store front systems appear to be of 1970's or 1980's vintage and do not meet the current building code criteria for impact resistant glass.

Aesthetically, the lobby looks outdated and does not present a modern, attractive appearance. The building is located on the Siesta Key beachfront, and strong sea breezes blow through the lobby when both the north and south doors are open. An airlock form of construction at the south entry can mitigate that 'tunnel breeze' substantially.

If the Association desires to update, upgrade, modernize and refurbish/renovate the lobby, the cost to do so is estimated at $75,000. That estimated cost includes the services of a licensed interior designer, engineering for new doors, and the cost of construction. If an airlock is desired, the total estimated cost is closer to $100,000.

Asphalt Parking Areas (Photos #51-52, #61, #64-65)

The asphalt in the common area of the building has passed its useful age. The areas have been resealed a number of times and the asphalt has lots its elasticity and fatigue resistance. Each time the asphalt is resealed it will become less effective.

The asphalt does not have to be replaced or resealed. LCM recommends the asphalt be replaced in the next two to three years. The cost for full replacement is estimated to be $62,000.

Sidewalks (Photos #53-54, #56)

The ground floor sidewalks appear to be the original construction. The sidewalks are in fair condition, but their age, cracks and faded appearance detract from the aesthetics of the building - and in some areas present a tripping hazard.

We estimate the cost to replace all of the existing sidewalks with pavers will cost about $25,000.

Concrete Repairs - Ground Floor Columns (Photos #63, #69-71)

The lower portions of the ground floor columns are showing signs of spalls and other deterioration. Portions of concrete columns at ground level are subjected to wet/dry cycles and deteriorate more rapidly than dry concrete. Approximately 12 of the columns are need of repair, but are not, at this time, in an unsafe or dangerous condition. We recommend these concrete repairs be performed within the next 24 months. And, we estimate the cost of these repairs will be about $30,000

Painting (Photos #55, #57-59)

Areas of the paint and caulk are aging. LCM recommends the Association have the building painted in conjunction with any major restoration repairs. This will mitigate the overall costs

The rusting window sills, bad sealants, stained caulking, rusting door sills, loose stucco and stucco cracks can all be done as part of the paint job. LCM advises the building has another two or three years on the life of the current paint.

LCM estimates painting and caulking costs at $140,000.

Miscellaneous (Photos #68, #72-74)

LCM noted that the constant moisture from the carpet is causing the lower half of the metal door frames to rust. The moisture, from the carpets may also be blamed for the severity of the rusting window frames.

LCM observed items not included in our Master Plan. There are electrical outlets on the balconies, missing covers. Many of the balcony ceiling fans are rusting and hanging loosely from the ceilings. The majority of faucet heads on the balconies were rusted and falling apart. Many of the balcony wall sconces were rusting and had peeling paint around their bases. A few of the light fixtures were not secured to the wall.

On the 7th floor, near units #705 & #704 there is a pipe in the ceiling that is not connected.

Roof (Photos #75-76)

Construction drawings from 1974 show a roof structure consisting of open-web steel joists, fluted metal deck and 3" to 4" concrete. The original roofing was a built-up tar and felt system. Reports indicate the roofing was replaced circa 2004 with a single-ply membrane manufactured by Duro-Last Roofing Company. The Duro-Last single-ply roofing systems typically carries a 15 to 20 year warranty. The 2004 re-roofing project included removal of the old built-up roofing, installation of isocyanate insulation fastened to the concrete deck, and the single-ply membrane glued to the paper backing of the isocyanate insulation. Enhanced fastening was installed at the edges of the roof, but not installed at the interior portions. See photos #75 and #76.

LCM used infrared thermography to find leaks in the single-ply membrane, but found none. The membrane was examined in three locations. No evidence of water intrusion through the membrane was found. The membrane shows slight chalking and cracking, and has an expected remaining life of 3 to 8 years.

The attachment of the single-ply membrane to the roof by gluing to the paper backing of the isocyanate raises concerns. The paper backing is of minimal strength, and a major hurricane at this building will likely have sufficient uplift to tear the membrane from the roof. The resulting intrusion of rain into the upper floors could cause millions of dollars in damage. LCM recommends additional fasteners be installed with plates and screws into the concrete deck.

Roof-Top Air Conditioning Compressors (Photos #77-78)

The air conditioning compressor units installed on the roof are not anchored to the roof. High winds will likely dislodge the compressors resulting in loss of air conditioning and potential loss of the compressors over the edge of the roof. See photo #77. Electrical and refrigerant lines penetrating through the roof to the compressors are poorly anchored. See photo #78.

LCM recommends the compressors and their support lines be anchored to resist anticipated winds. The building code now requires that, when roofing is replaced the, compressors be raised onto frames to provide maintenance clearance under the units, and that they be properly anchored. The Association could wait until the re-roofing is performed to upgrade the anchoring of the compressors and their support lines, but LCM recommends this be done sooner than later.

Installation of additional fasteners for the single-ply roofing membrane is estimated to cost $20,000.

Minimal anchoring of the compressors and support lines, if performed at this time, is estimated to cost $5,000.

Full and proper anchoring of the 24 rooftop compressors, including new raised support frames, and anchorage of support lines, whether preformed now or when the roofing is replaced, is estimated to cost $40,000.

Re-roofing is estimated to cost $200,000. Compressor support frames and electrical/refrigerant line anchorage, as described above, is not included and must be added if not previously installed.

Mechanical

Engineering Observations:

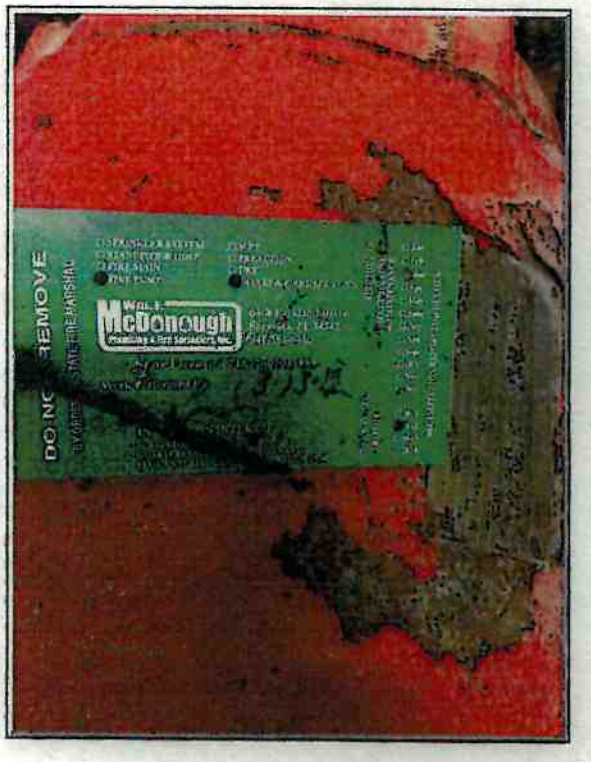
Transformer/elevator equipment room has a wall mounted mini-split a/c system. System is not currently running and is creating unusually high temperatures in the space. This A/C

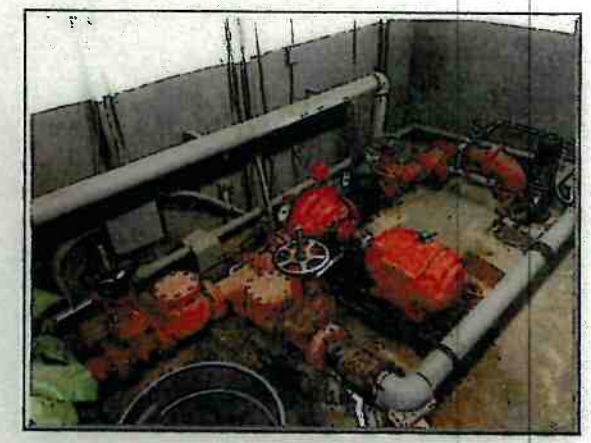
unit is needed to temper the air in this room to get the maximum life expectancy out of the equipment, lower maintenance cost and insure continuous operation.

Recommended servicing mini-split A/C unit and bring up to proper working order. Recommended t-stat setting 80 degrees. Keep doors and openings to outside closed at all times. Replace A/C unit if necessary.

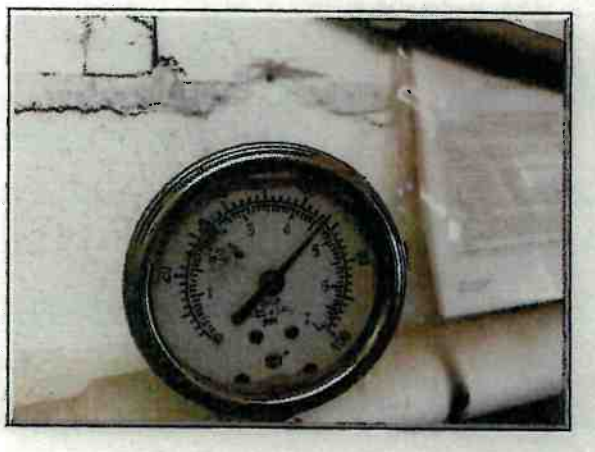
First floor fire and domestic water pump room. Fire pump appears to be serviceable but some parts are showing signs of aging beyond their useful life. Inspection tag indicates last

service date of 3-13-12, It is our recommendation that a certified fire flow test be performed once each year to ensure the proper working order of this equipment. Engineer recommends the replacement corroded or rusty parts and existing valves. The jockey pump and main pump be exercised on a regular basis to ensure proper working order.

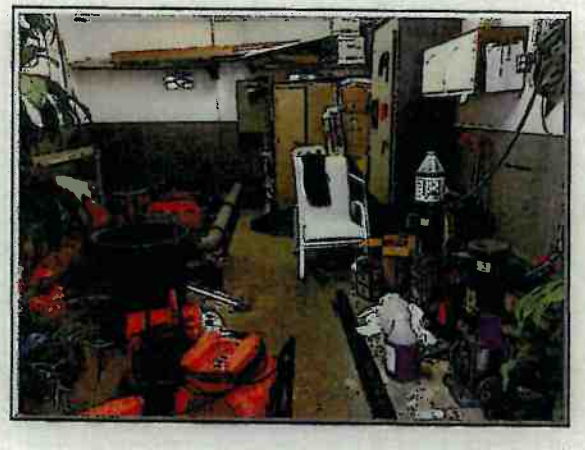




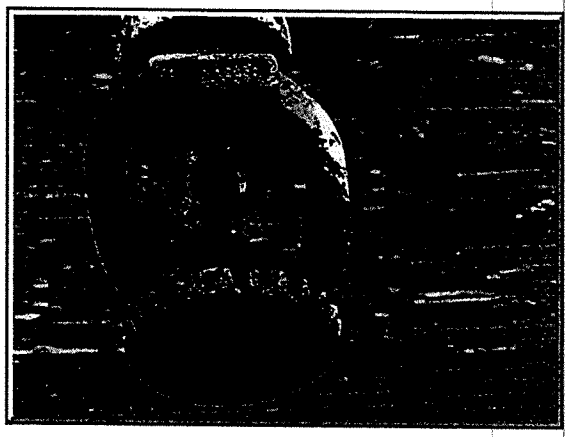
Domestic water booster pumping system is running on lead lag variable speed drives and appears to be in good working order. Pressure gauge indicates holding near 70 psi during time of light water usage.



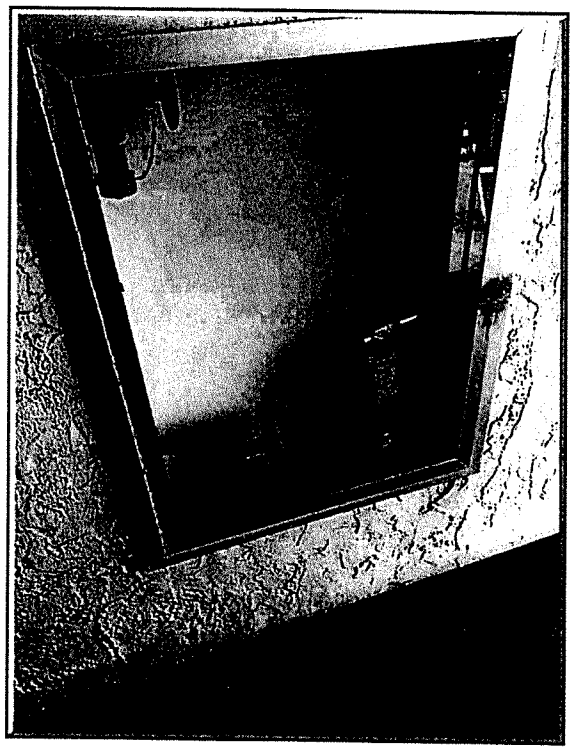
The general order of the pump rooms needs to be addressed. It is our recommendation that all items being stored on this area be removed immediately. Such as oil based solvents, furniture, cleaning supplies, cardboard boxes, trash bins, and appliances not related to the fire and domestic pumping systems. This will help prevent fires, short circuits and ensure ease of escape for individuals occupying this space for maintenance purposes.



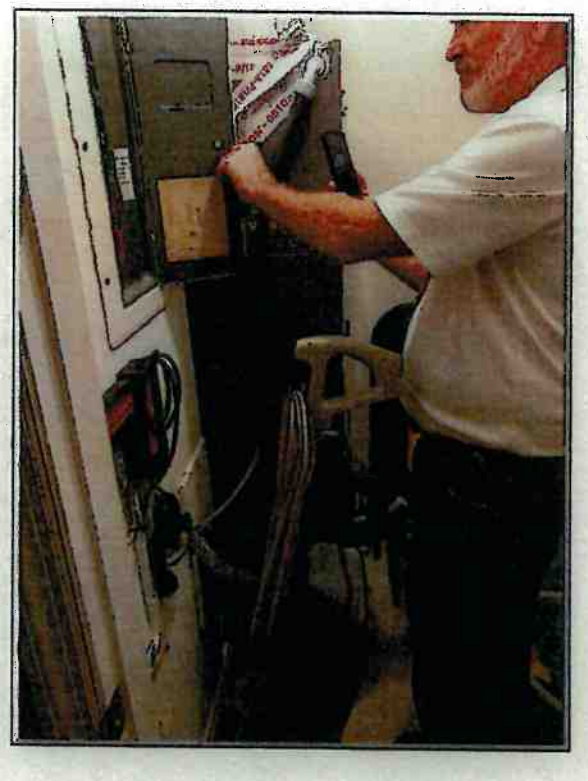
The sprinkler system only services critical areas of this building i.e. first floor parking, trash rooms and possibly elevator shafts (shafts not visible during ths visit). Inspection of the sprinkler heads indicates existing heads are corroded and in need of replacement. Some currently installed heads may be part of a national recall list. This needs to be addressed by a certified fire protection contractor to ensure the replacement with new heads that have the proper response time glass bulb with the correct burst temperature for that location, as well as connection size to its threaded pipe and escutcheon covers. Photos below show existing sprinkler heads at sub living level parking spaces and trash rooms of different age, make, model and response type. Recommend replacement of all fire sprinkler heads in building.



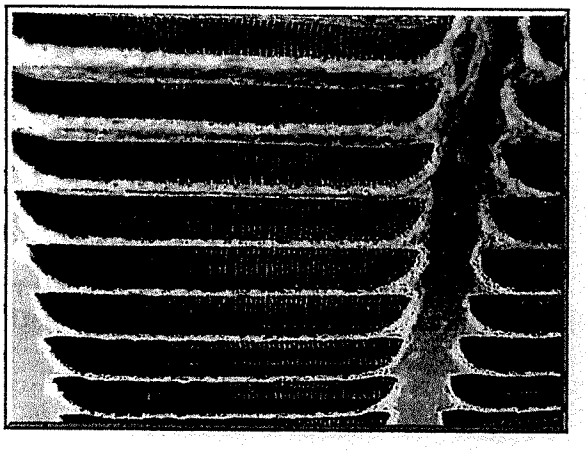
Gerald L. Abrams Engineering LLC (GLA) would like the opportunity to discuss a fire sprinkler system that will serve the entire building on every floor and in every space. Due to the nature of the existing system and its abandoned hose cabinets (3 each floor) on every floor this may be easier to achieve than previously thought. A fully sprinkled building will increase life safety measures greatly and lower insurance cost. More investigation will need to take place on this matter.

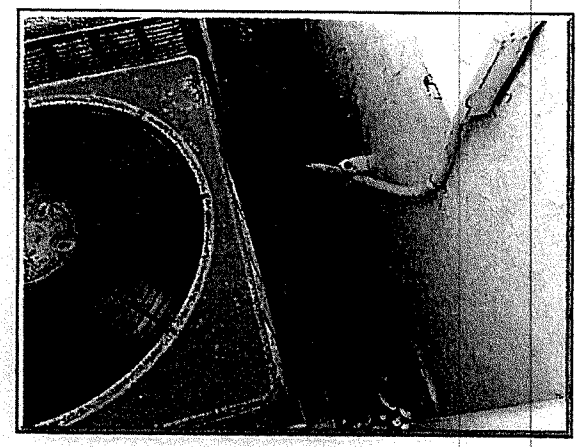


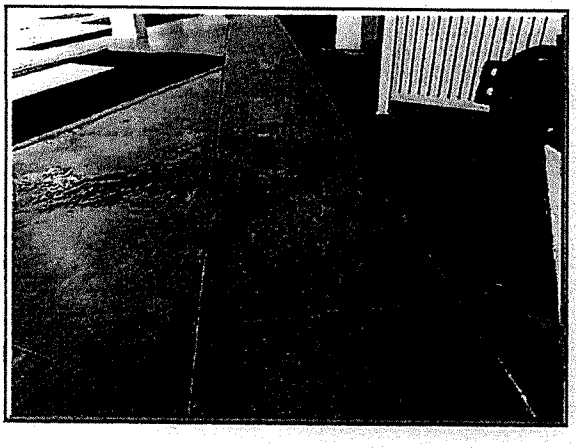
Condensate drainage system for air handling units at each apartment to outdoor locations. Upon inspection apartments condensate lines appear to be orderly and consisting mostly of PVC piping in the A/C closets. Photo example of unit 405 with cleanout cap intact as electrical engineer David Patton, P.E. inspects the electrical panel.



Discharge location of the existing condensate needs to be rerouted to the storm drain culvert or a planted area to prevent further property damage, such as seen in the photos below. You will notice the standing condensate water in the rock bed areas around the condensing units is causing premature corrosion on the condensing units adjacent to the electrical and pump rooms. Constant moisture is also causing algae to grow on the concrete walkways creating slip and fall hazards and paved parking areas to buckle. Repairs needed in parking space #605.







It is recommended that the condensate system be jetted clean by a licensed plumber and routine (non-chlorine) chemicals be added at each unit A/C drain connection quarterly to maintain system.

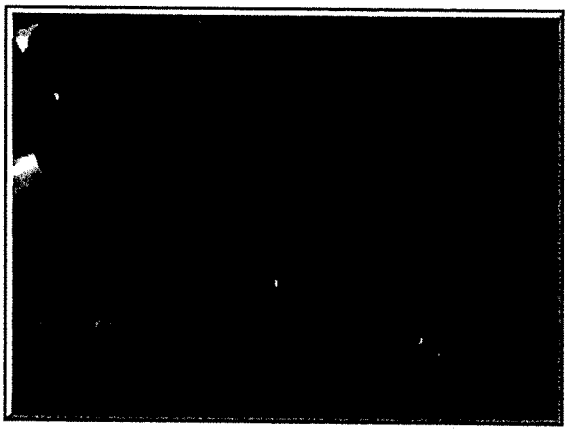
Some of the units inspected had stacked washer dryers added over the years. Some units such as the one in the photo below (unit #601) are connected to lint collection devices. Lint collection devices are not the first choice for disposing of dryer discharge air. These devices need lots of maintenance to prevent fires, discharge dust, lint and hot air into living spaces and are generally not accepted as a solution to dealing with dryer air discharge.

Engineer recommends Jamaica Royale Tower II Association, Inc. mandate all existing dryers configured this way, as well as future installations in the building, be routed to the outdoors using current Florida Building Code methods. Owners wishing to install a washer dryer in their unit also may want to consider a make a model washer dryer that is vent-less for the factory.

Domestic water piping on the first floor consists of mostly copper tubing with ball style shut off valves at the base of the risers. Located in the storage rooms, piping appears to be in good condition for its age. Some valves are showing signs of corrosion and lack of use. These valves also bare no tags indicating the unit numbers they serve.

Leaking domestic water pipes are imminent. Tagging valves with unit numbers can minimize confusion during emergency shut off times, minimizing property damage. Even a tagged valve is of no use, unless it is exercised quarterly to ensure and replace as needed.

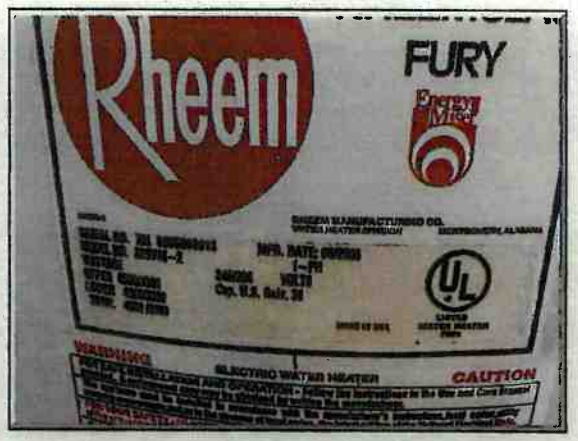
Domestic water piping in the units inspected are a mix of CPVC and copper tubing. Visible piping is in good condition and in most cases installed correctly. Unit water heaters and garbage disposals tagged with stickers from Randy Mask Plumbing show this company payed close attention to detail installing water hammer arresters and fully metallic supply stops at individual fixtures. The photo below shows one unit with plastic supply stops.



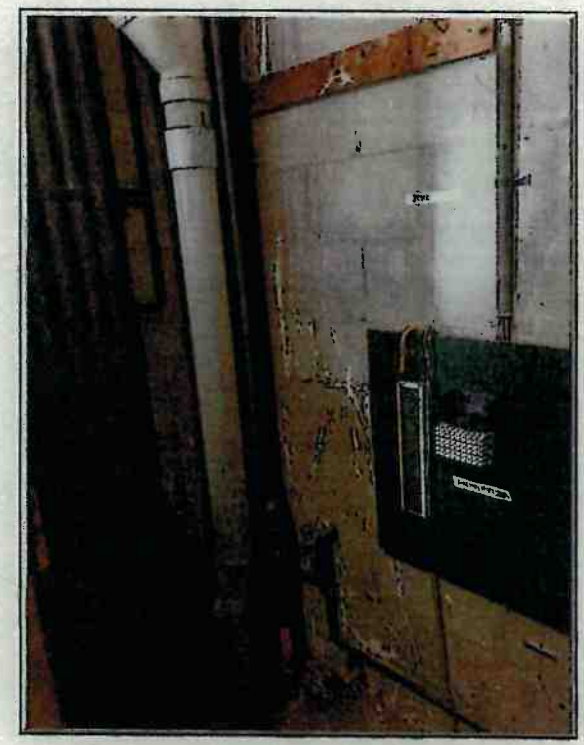
Plastic supply stops have a tendency to snap in two at the stem due to the harsh Florida environment, hard water elements and suffer form premature aging. Engineer recommends that Jamaica Royale Tower II Association, Inc. mandate all future domestic water supply stops be a fully metallic style to minimize property damage due to leaks from inferior supply stops.

Water heaters in units inspected appear to be in good working order with shut off valves intact. Water heater kilowatts all seem to be of the 4.5KW non-simultaneous size varying gallonage and tank shapes. This 4.5KW number may play an important role in not over-

sizing electrical components. David Patton Jr. electrical engineer will speak more about this in his report.



Sanitary waste and vent piping that is visible on the first floor consist of cast iron and PVC materials with cleanouts nicely located above finished floor.



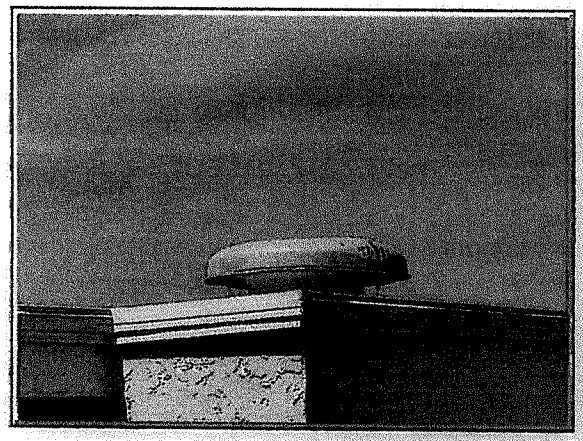
Sanitary pipes visible in units are a mix of PVC, cast iron and copper tubing. The photo below shows a kitchen sink in unit 306 consisting of PVC, polished chrome and copper tubing. The installation is holding up nicely for its age and draining with no leaks.

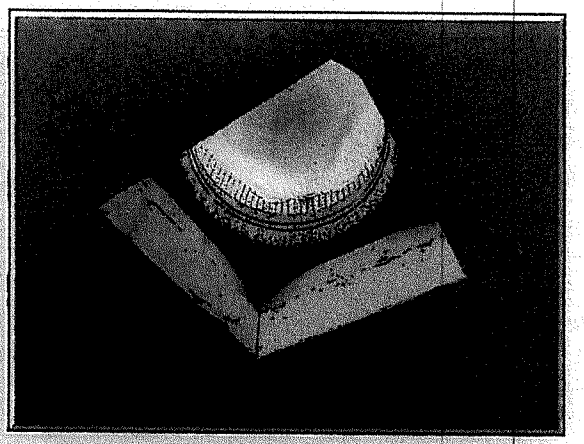
Engineer recommends replacing troublesome sanitary waste and vent stacks in like kind from roof vent down to ceiling ground level. Some board members may say much of the piping has been replaced already during renovations. Replacing from top to bottom will ensure the work is under one contract, warranty and contractor with no gaps, should a failure occur. Plumbing contractors will not typically warranty work they have not installed.

The Engineer recommends NOT lining the pipe. Pipe linings are only as good as the host pipe. Once the host pipe is corroded away linings do NOT become structural pipes.

It has also been brought to GLA's attention that failures in the existing original cast iron piping may exist now. We recommend the Association hire a licensed plumbing contractor with camera pipe video capabilities to find the failures and make patch repairs until provisions are in place to replace the stack entirely.

The photo below shows the stairwell ventilation opening at the 8th floor landing. Ventilation is by gravity means with intact bird screening and does a fare job of expelling heat through the top of the stair. Little signs of water intrusions inside exist.





If it becomes necessary to pressurize the stairwells, for code compliance, it can be accomplished easily by means of installing supply fans at the existing roof openings.

Action Items

The engineer states that the sprinkler head replacement noted above of this report is of the highest priority, to ensure the life safety of the occupants. Bringing the fire pump up to proper working order, by replacing necessary parts and flow testing accordingly is highly recommended.

Fire Sprinkler head replacement and fire pump refresh with flow test (budgetary cost $15,000 to $25,000) **Needs immediate attention.**

Addressing condensate issues including jetting clean pipes and rerouting piping at ground floor. (Budgetary cost jetting and rerouting work $6,000 to $9,000).

Sanitary stack camera scope to find existing pipe failures and repair them. (Budgetary cost for camera work $3,000 to $5,000). Patch and repair cost unknown until camera work is complete.

Full replacement of the cast-iron sanitary waste and vent stacks (Budgetary cost for work $75,000 to $90,000 per stack), including interior laterals and removal and replacement/repairs to drywall and other interior finishes.

Stairwell pressurization fan system (Budgetary cost for work $13,000 to $18,000).

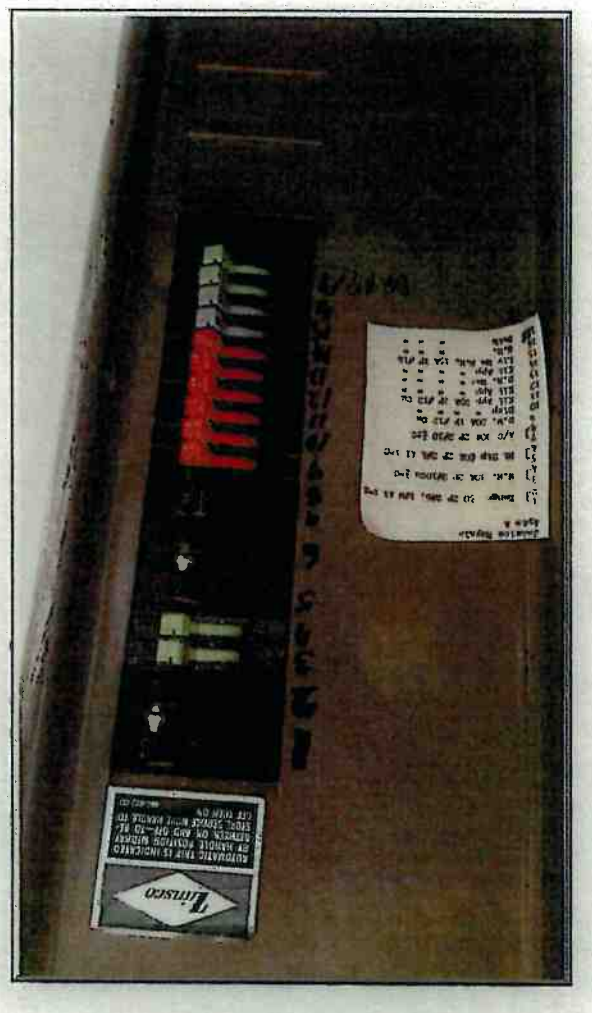
ELECTRICAL

Partial Description of Existing Electrical Distribution

Electric service enters the facility and terminates at six main switches: Two 1000-amp mains (#1 and #2) for the 42 tenant panels, two smaller mains (#3 and #4) for common-area load electrical panels, and elevator (#5), and a generator-backed main panel (#6).

A 125-kW/156-kVA, diesel generator provides backup power to selected common-area loads in a 300-amp emergency panel (Main #6), these loads include one of the elevators, a 40hp fire pump, a jockey pump, fire detection and security systems, telephone, backboards, and common-area egress lighting. Large electrical feeders to panels were aluminum conductors. Motor circuits and smaller branch circuits were copper.

Each individual unit had its own 125-amp, 120/208-volt electrical panel for typical residential loads (range, water heater, air-conditioning split system, lights, receptacles, etc.). Other appliances such as washer/dryer combinations and wine coolers have been added at later dates in some units. Most of the individual unit panels were manufactured by "Zinsco" Company; however, in some units, newer panels manufactured by Square D Company have replaced the older Zinsco panel.

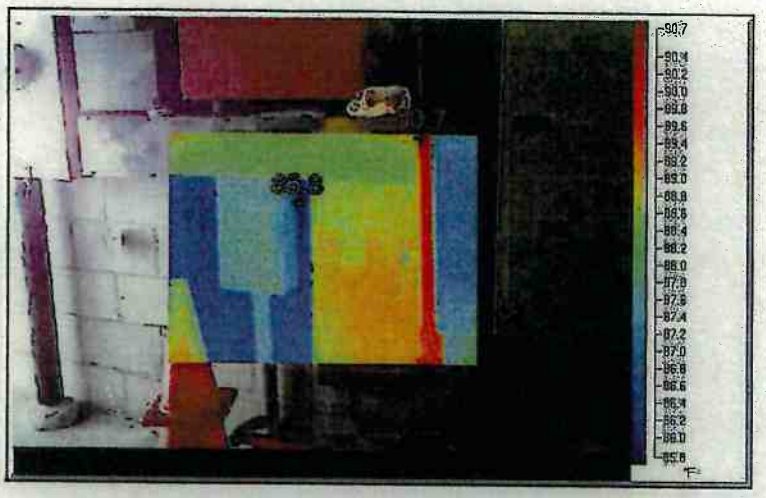


A 16- zone fire control/communicator (Silent Knight Model #5207) provides fire detection, alarm, and equipment control (elevator recall, etc.) systems for the facility. A digital dialer provides communication per NFPA 72. Document showed last service on 04/24/17. Incoming telephones, data and cable TX systems provide communication services to individual units.

Electrical Survey

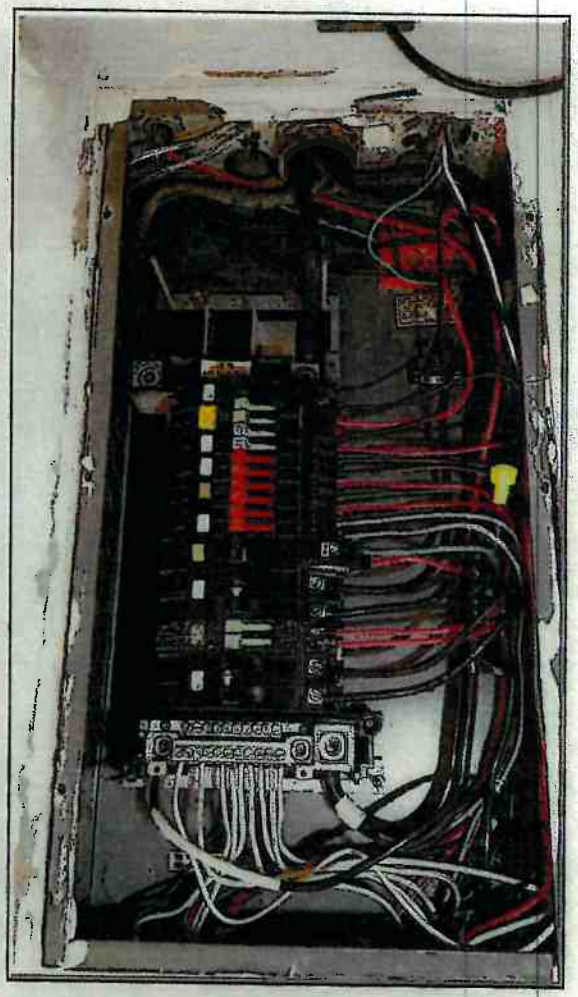
Nameplate data was taken of major electrical equipment (fuses, circuit breakers, panels, etc) and load information of the larger loads such as dryers, water heaters, a/c, etc. A

digital multi-meter took voltage and current readings of equipment under load. Thermal images were taken of disconnected switches, fuses, circuit breakers, and other junctions caused by resistance to current flow or overloading. Some images of the electrical distribution equipment for common-area loads are shown below.



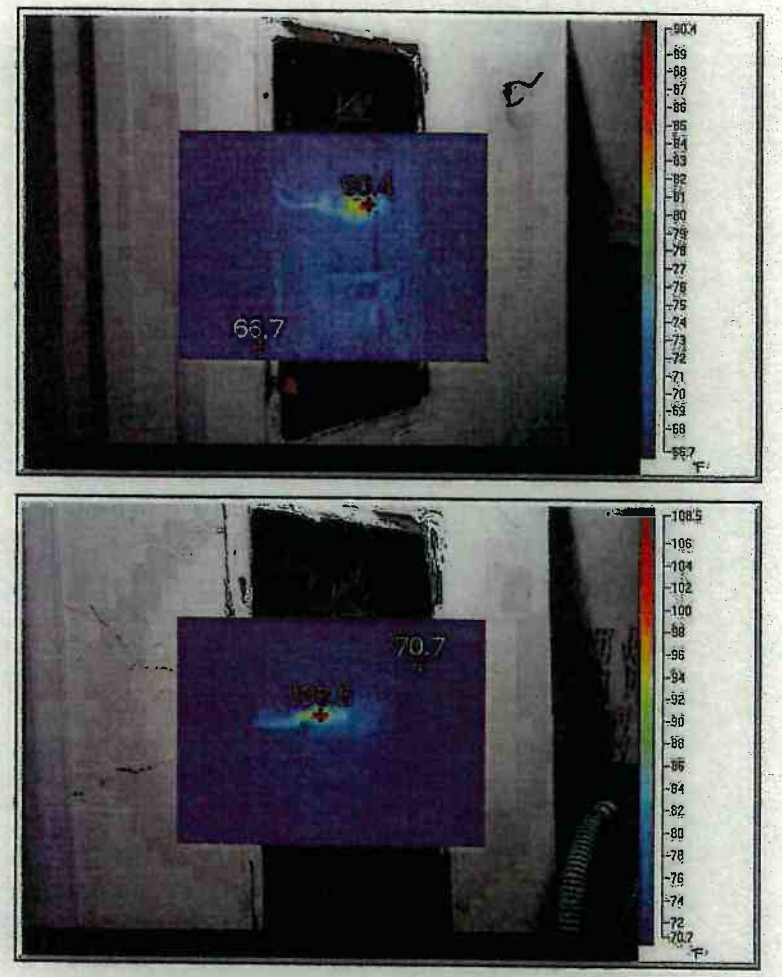
A thermal camera can visually locate intermittent or arcing junctions. Poor fuse connections are easily identified. The following image of a three-phase fused switch shows the "c" phase fuse noticeably warmer that the other fuses. The "c" phase load-side conductor also appears warmer than the "a" and "b" phase load-side wires.

To observe conductor terminations and circuit breaker connections, we removed the panel cover to two individual unit load centers on each floor. We found no evidence of arching or burning on the incoming 125-amp aluminum feeders, or on any of the branch circuit wiring extending from the load side of the breaker. We did not remove any breakers.



All of the panels observed had debris scattered in the bottom of the panel enclosure (see below); this should have been removed during commissioning of the original building.

A clip-on ammeter attached around the panel feeders showed current measurements between 10 and 12 amps per phase for all panels measured. The bulk of this load was from the air-conditioning condensing unit. Thermal images of some of the electrical panels shown below illustrate this load activity. The noticeably warmer two-pole breaker shown below protects the outdoor condensing unit circuit. Clip-on ammeter measurements showed approximately 12 amps per phase in this circuit at the time of the photo.



Individual Unit Load Centers (Electrical Panels)

Some of the original individual unit electrical panels (load centers) had been replaced with newer panels. The owner's representative did not know the reason for this. The original load centers manufactured by "Zinsco". A brand no longer manufactured and with a history of electrical problems with their panels and circuit breakers. Some of the problems are described as follows:

Zinsco circuit breakers have a reputation for allowing current "overloads" with out tripping and removing the overload condition from the system. For example, a 20amp circuit overloaded to 25 or30 amps does not trip but continues to heat the conductor and its insulation until a fault occurs.

Because "overloads" can over-heat-the contacts during the time they are together, they can actually become welded to the buss bar.

It is not always possible to visually identify a damaged circuit breaker; therefore, unless a circuit breaker is tested it can't be known if it would work when needed. As part of the test each breaker, at a minimum, should be removed from the panel to observe the contacts and buss bars for arcing.

These panels and breakers are 45 years old, from a manufacture with a history of creating fire hazards.

The replacement panels were manufactured by Square D Company. Although replacing a panel can sometimes be difficult and costly when installation is considered, these existing conditions may not be too severe since some of the owners have already made their panel change-out. Certain breakers would have to be replaced with arc-fault circuit interrupters (AFCI) or ground-fault, circuit interrupters (GFI) as required by subsequent National Electric Code (NFPA 70) revisions. It appears that the installed electrical wiring should not need to be replaced as part of a panel change-out, only re-connected to the new breakers. To avoid issues with existing conductors too short to reach some of the new breakers near the bottom of the panel, a new panel should be specified with conductor terminal bars installed so proper extensions can be made where necessary.

Thermal Imaging

One of the previous images shows an elevator motor fused disconnect switch where the "c" phase fuse appears noticeably warmer than the other two fuses. This is an example of a thermal image showing an electrical junction (the Fused switch) with an abnormal temperature distribution; it could represent an abnormal impedance, or partial blockage, to current flow in the "c" phase. A three-phase motor load would be expected to evenly distribute its current flow between the three phases. One way to quantify this variance would be to measure the voltage drop across the warm fuse and compare this to the values measured across the other fuses; again, a motor load should have equal voltage drops across all fuses. Further investigation to identify the cause is warranted for safety reasons.

Most of the IR photos provided showed the temperature rises in circuits when the electrical load is in operation. Images of the individual unit load centers showed most electrical load activities coming from the outside air-conditioning unit compressor. Other than a few lights and maybe a TV, no other loads were in use. This has significance when viewing the IR photos; only the loads that are operating at the time of the photo will provide information. All of the dark circuits simply mean that they weren't running. To show heating, normal or not, a circuit should be loaded as close to 80% of its capacity as possible when photographed. UL 489, the standard for molded-case circuit breakers, states that conductors at terminations near insulation shall not exceed temperature rises greater than 50 degrees centigrade above ambient. This insures that the conductor's insulation will not be damaged by the heat. Because of the concerns raised previously with the Zinsco electrical panels, a more thorough library of images, with load equipment running at the time, should be compiled.

On-Site Electric Generating System

The generator was not tested during our visit and the owner's representative didn't know it the system was set to automatically run a periodic self-test. The self-test is a requirement of NFPA 110: "Standard for Emergency and Standby Power Systems". Because this generator provides backup power for emergency loads (egress lighting) it must meet the criteria for a "Level 1 Emergency Power Supply System", as called out in

Chapter 4 of NFPA 110. The system also must be routinely maintained according to NFPA 110, Chapter 8.

Transient Voltage Surge Suppression (TVSS)

The client's representative knew of no reports of damage to equipment either by lighting or other events. Normally, in a facility of this type, size, and geographic location, transient voltage surge suppression (TVSS) is recommended at a minimum to be installed at the main electric service entrance. If the facility has a history damage, with the possible cause being lightning or utility-related, smaller TVSS devices should also be installed on circuits that power the damage loads. How to apply additional surge protection for these specific loads would depend on the type of circuit(s) involved and equipment damaged. Roof-top air conditioning equipment because of the exterior exposure, may need their incoming power conductors protected. Sensitive consumer electronic equipment may be damaged by surges coming in, not only on their power conductors, but also on their communication lines (phone, data, cable TV). Specific protection for these types of circuits, in addition to the power lines, should be considered.

Electrical Action Items

The "Zinsco" individual unit panels should be replaced with new electrical load centers. As stated in the discussion section, the age of the existing panels, the panel manufacturer's history of electrical failures creating fire hazards, and the inherent design flaws of this technology all make panel replacement the only option.

More measurements and data are required to find the cause of the abnormal temperature differential in the elevator fused switch with the warm fuse described in the discussion section. See the diagnostic procedure described in the discussion section above.

A more complete library of thermal images should be compiled for all fuses and breakers, with load equipment operating at the time of imaging.

Area in front of electrical panels must be kept clean and accessible to personnel. A 30"

wide by 36" deep space directly in front of the panel is required.

Any existing blank spaces in electrical panels which expose live buss bars must have plastic cover plates installed for protection.

Split system air conditioner in elevator equipment room should be repaired to maximize life of heat-producing electrical equipment in room. A transformer operating at 10 degrees centigrade above its rating reduces its life expectancy by 50 percent

The engineer should witness an automatic self-test of the generator.

Following is a list of life safety items, and associated costs, that should be addressed as soon as possible:

DESCRIPTION	SCHEDULE	ESTIMATED COST
Electrical: Replace Zinsco panels	ASAP	$2,500 each
Investigate the cause of increased temperatures at elevator fused switch.	ASAP	$2,000
Sprinklers: Replace all existing sprinkler heads.	ASAP	$15,000 to $25,000
Fire Pump: Test Run and Inspect and repair/refurbish as needed.	ASAP	$500 to $10,000 WAG
Standby Generator: Test Run. Engineer should witness this test unless documentation of recent testing is available.	ASAP	$2,000
Instruct Unit Owners of the importance of the balcony and walkway waterproofing system.	ASAP	N/A
Clean pump room floor of unnecessary clutter	ASAP	N/A
Install covers at blank and exposed fuse locations.	ASAP	$50 per panel

The following items are those that, if not addressed, will likely become life safety issues, or that will potentially result in large future expenditures, or that significantly detract from the appearance/value of the property:

DESCRIPTION	SCHEDULE	ESTIMATED COST
Concrete repairs: Including ground floor columns, upper floor columns and beams, walkway and balcony surfaces.	Less than 3 years	$300,000
Rooftop Air Conditioner Compressors: install proper anchorage and new raised aluminum frames	Less than 1 year (Sooner is Better)	$40,000
Roofing: Install fasteners in the interior areas of the existing roofing	Less than 1 year (Sooner is Better)	$20,000
Re-Roofing: Replace the single-ply roofing membrane	3 to 5 years	$120,000
Parking: Replace Asphalt	Less than 1 year	$20,000
Ground Floor: Repair curbs, sidewalk renovations. Replace concrete walkways with pavers.	Less than 1 year	$100,000
Exterior Painting: Including painting doors & windows, re-caulking door and window frames, and special cleaning and painting at EFIS.	1 to 2 years	$140,000
Mechanical: Repair split system A/C in the elevator equipment room as needed to ensure proper operation.	Less than 3 months	Unk

Mechanical: Repair ground floor A/C compressor condensate lines and relocate as necessary to avoid causing hazards to pedestrians..	Less than 3 months	$6,000 to $9,000
Electrical: Prepare a database of electrical panel Infrared images for future use.	Less Than 1 year	$2,000
Plumbing: Video scope of waste piping	Less than 1 year	$1,500 per stack

The following items are provided for information purposes. In general, these items are aesthetic in nature. Estimated costs presume the work is performed within the next few years:

DESCRIPTION	ESTIMATED COST
Lobby renovation/remodel/upgrade	$75,000
Balcony and Walkway carpet replacement. Includes repair of underlying waterproofing which will likely be damaged when the existing carpet is removed.	$200,000

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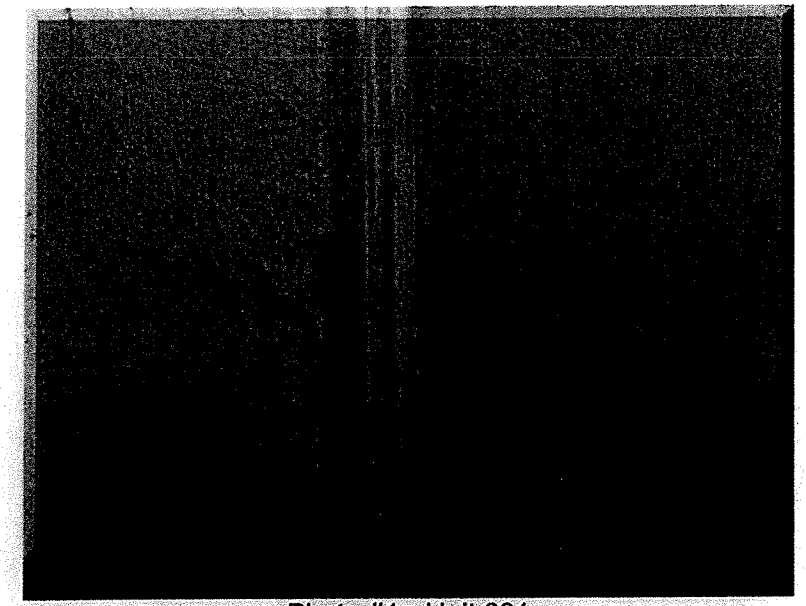


Photo #1 - Unit 601

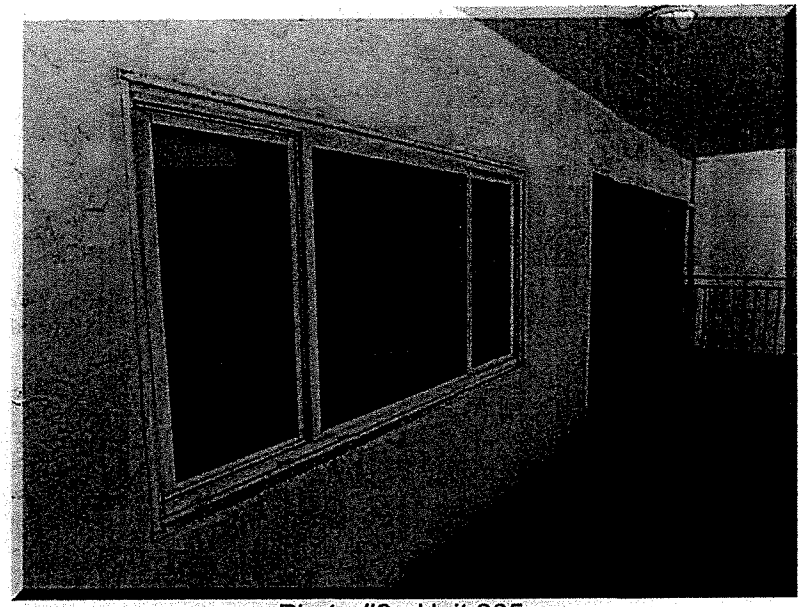


Photo #2 - Unit 205

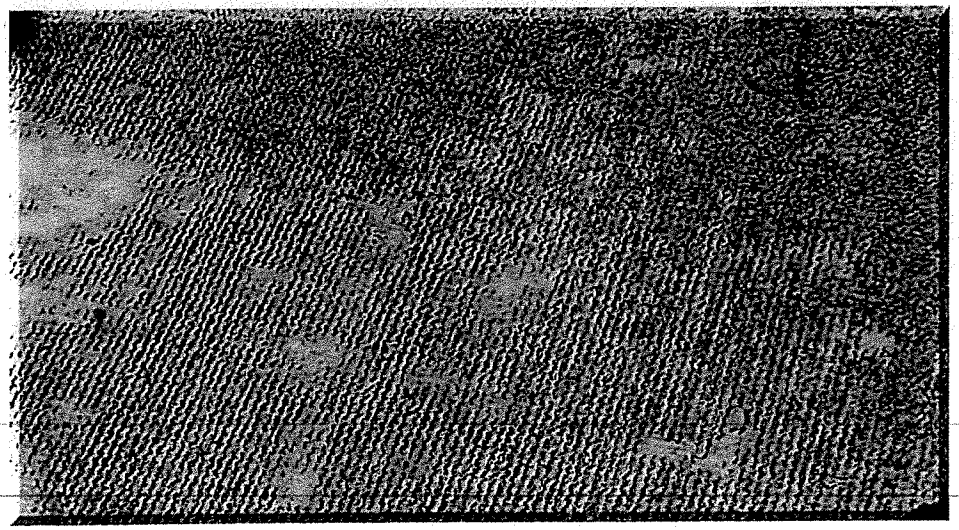


Photo #3 - Unit 803

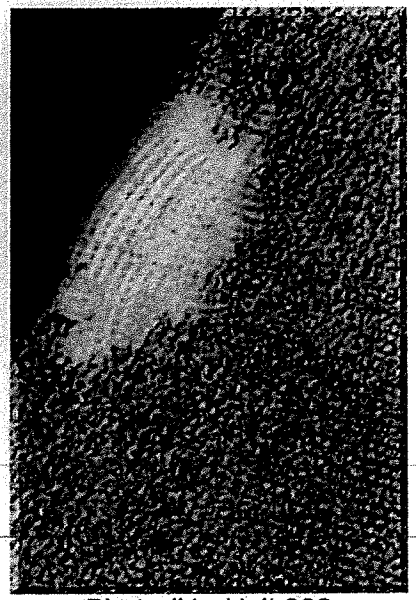


Photo #4 - Unit 803

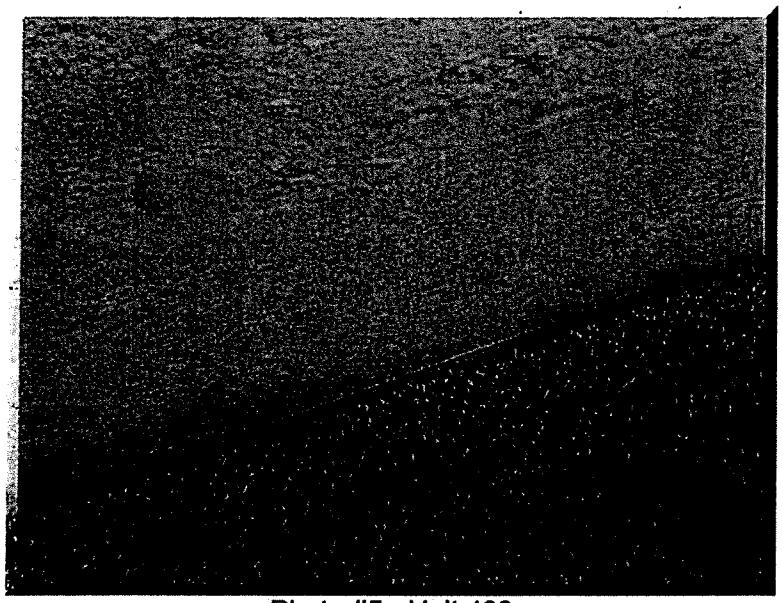


Photo #5 - Unit 403

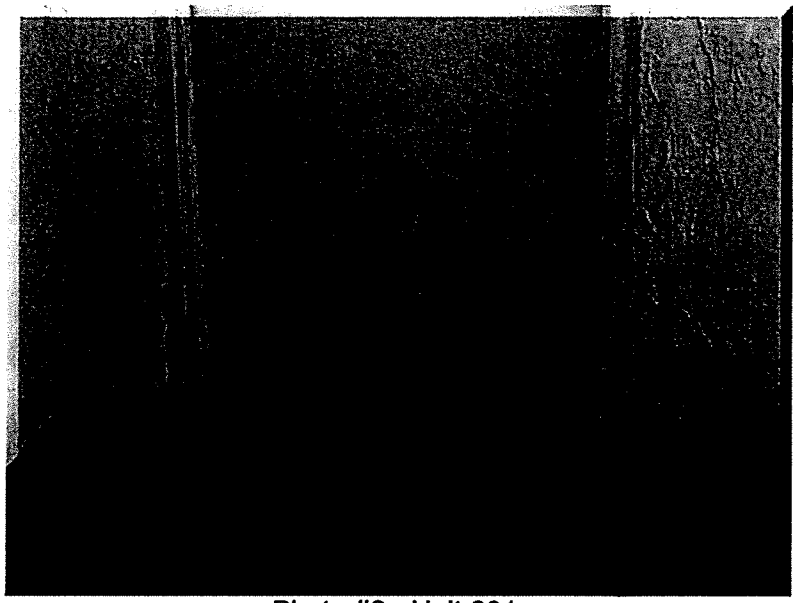
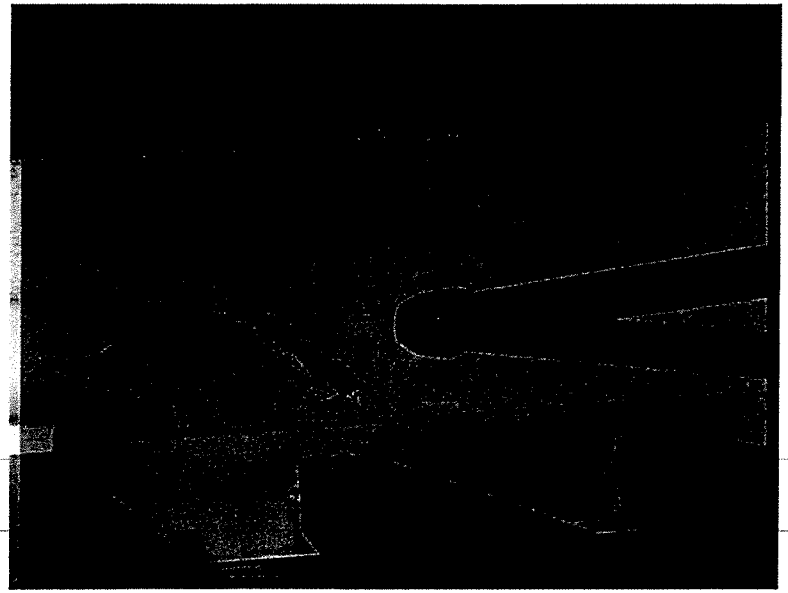


Photo #6 - Unit 601



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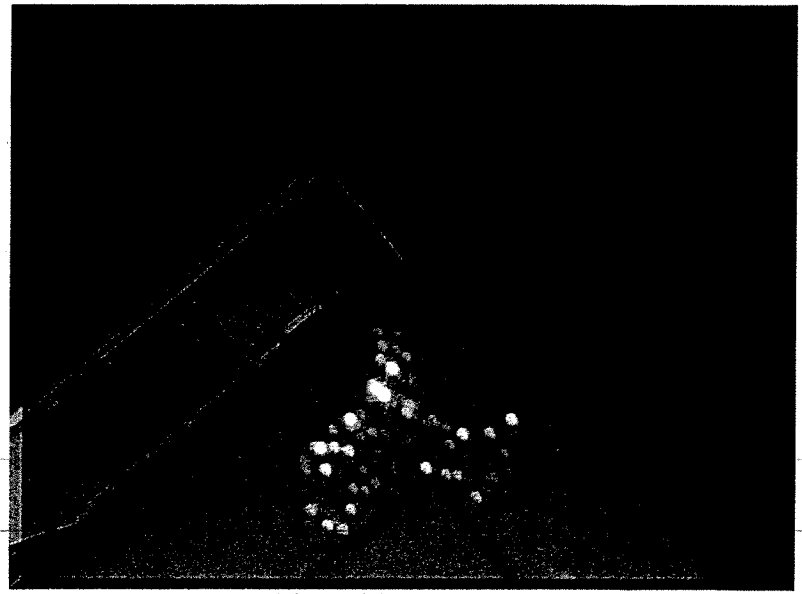

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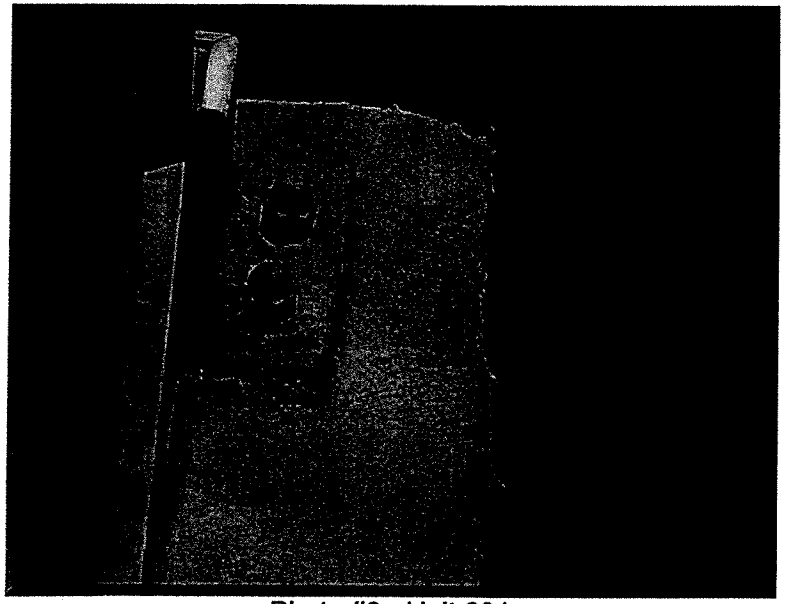
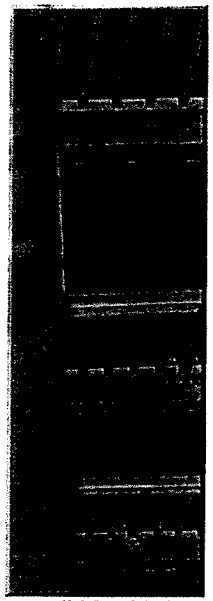


Photo #9 - Unit 601



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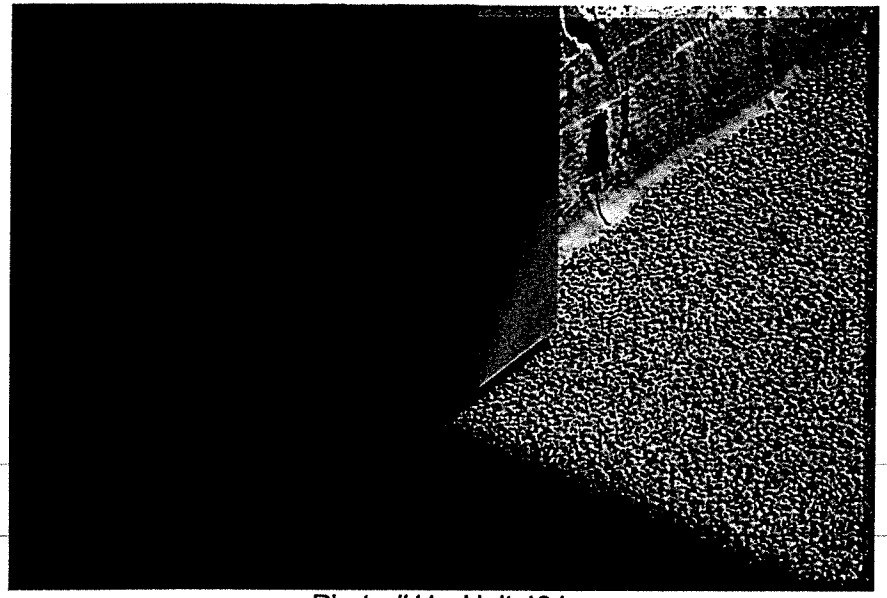


Photo #11 - Unit 404

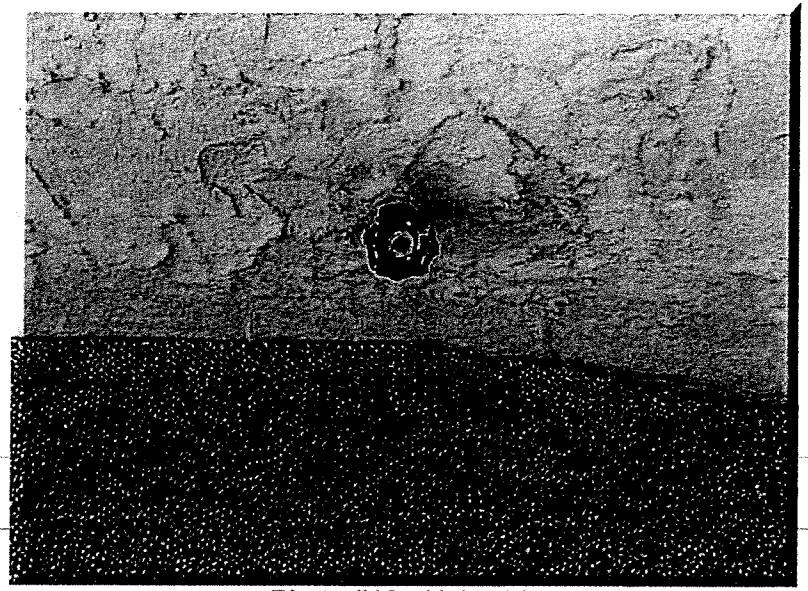


Photo #12 - Unit 406

Photo #13 - Unit 702

Photo #14 - Unit 601

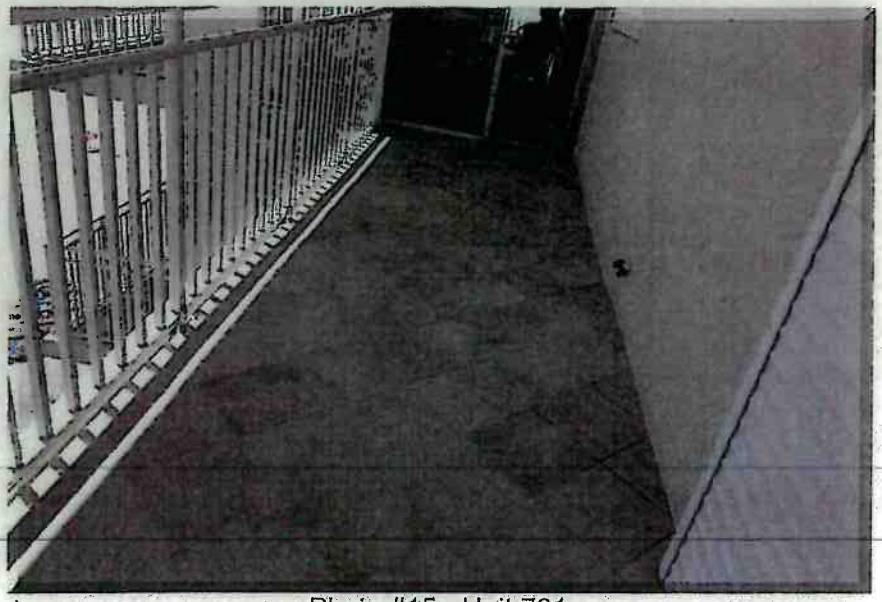
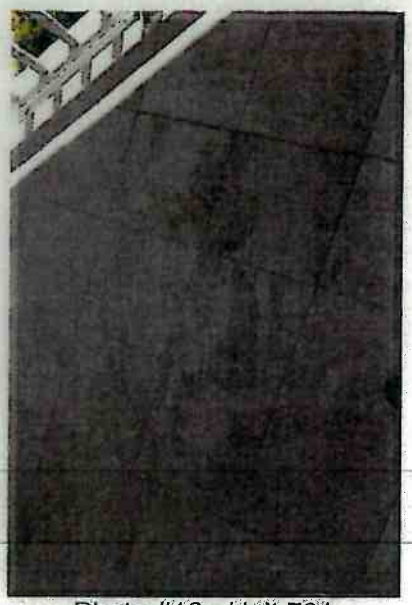


Photo #15 - Unit 701



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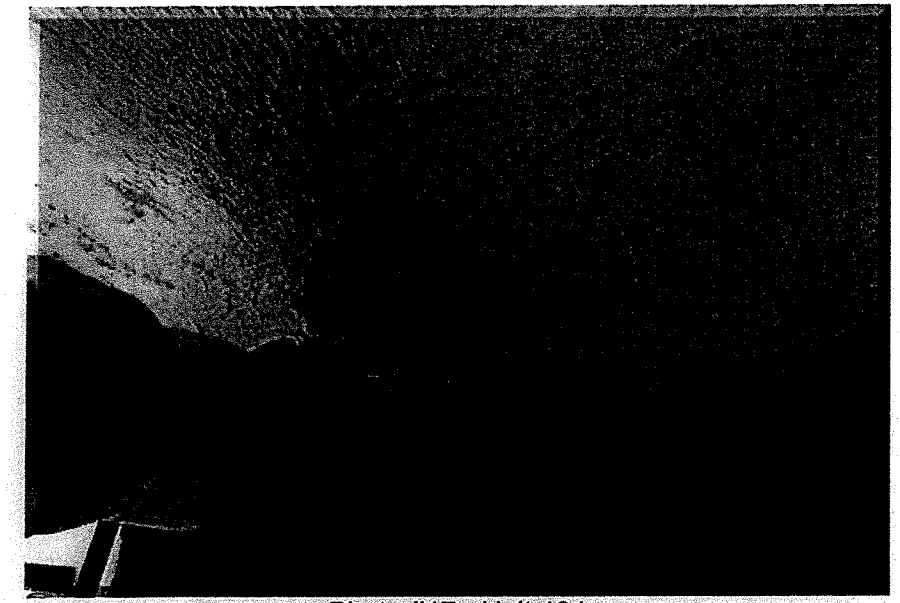

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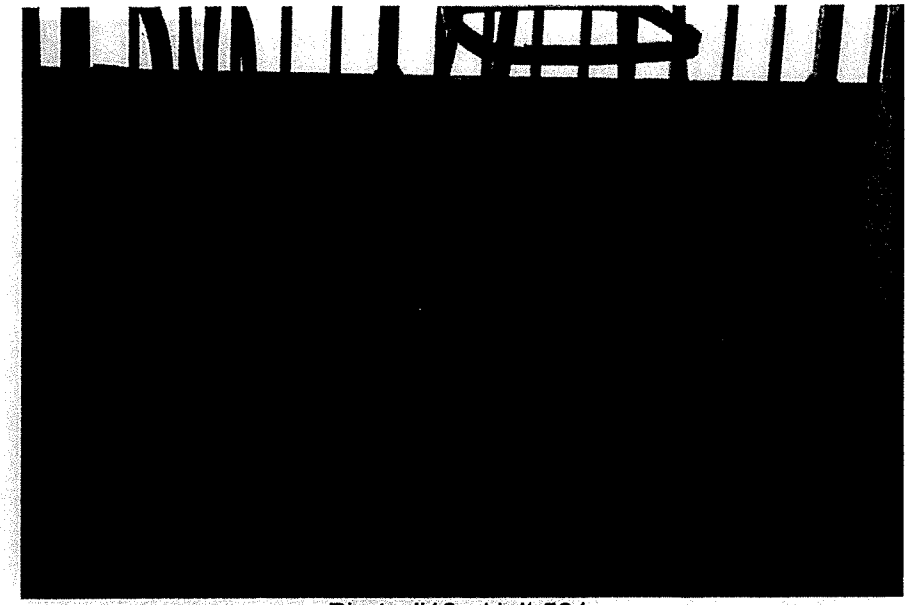

Photo #18 - Unit 501

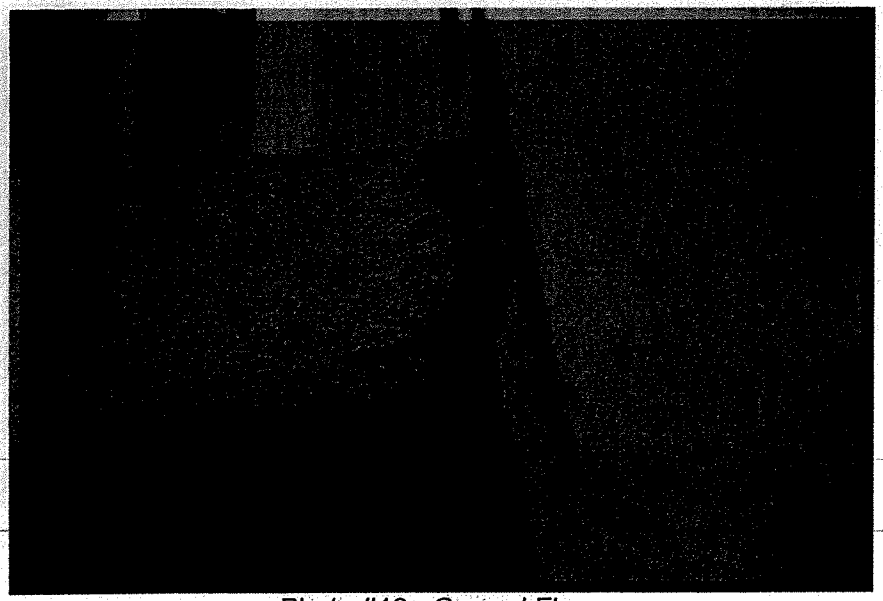

Photo #19 - Ground Floor

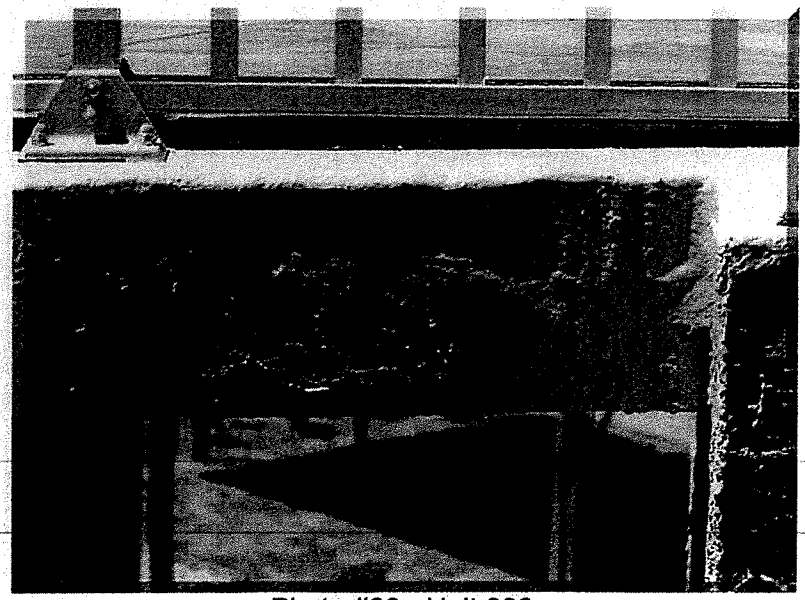

Photo #20 - Unit 806

Photo #21 - Unit 806

Photo #22 - Unit 601

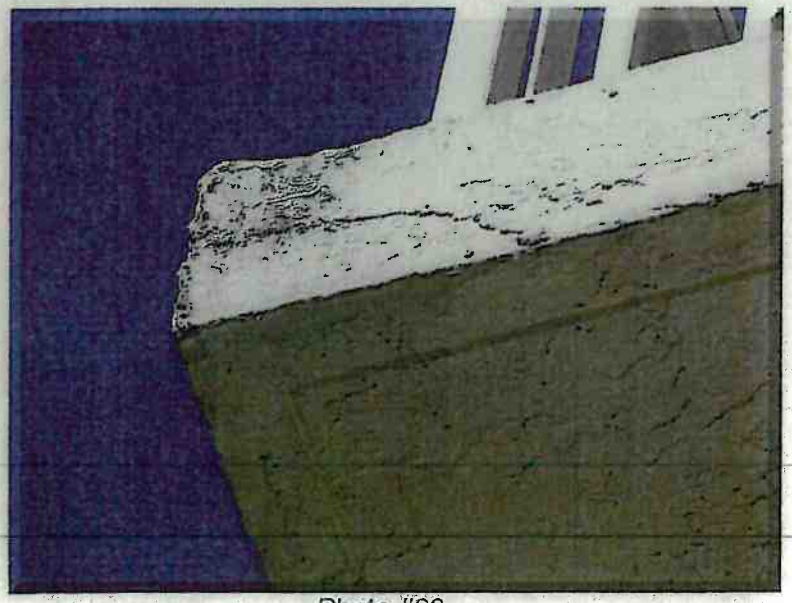

Photo #23 -

Photo #24 - Unit 402

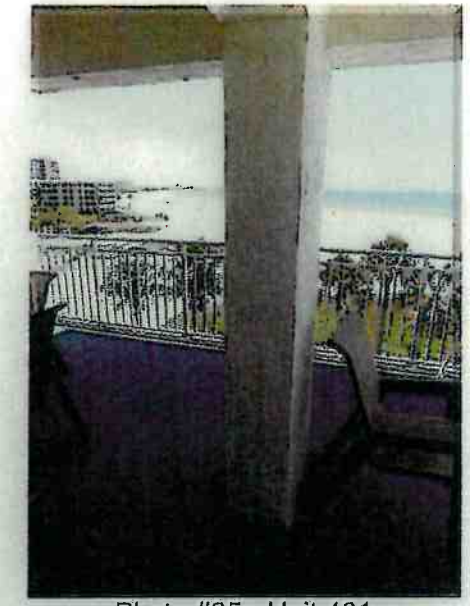

Photo #25 - Unit 401

Photo #26 - Unit 401

Photo #27 - Unit 401

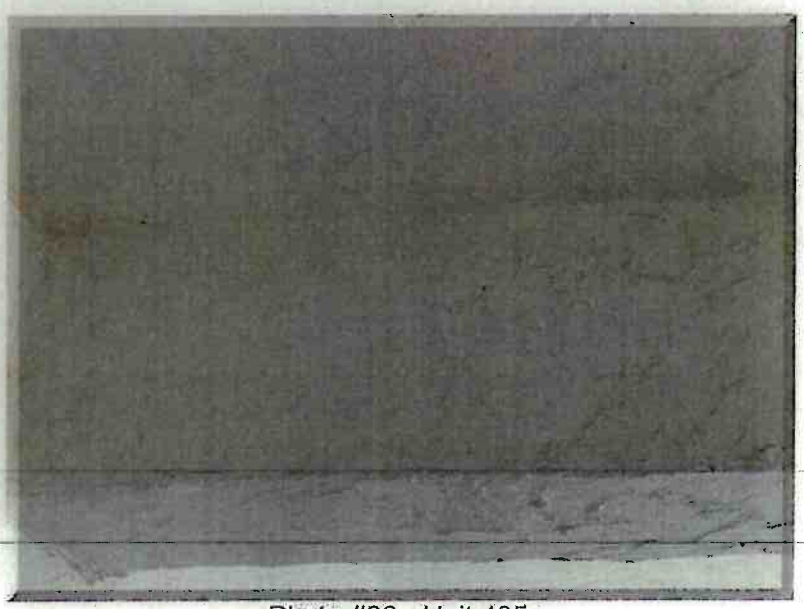

Photo #28 - Unit 405

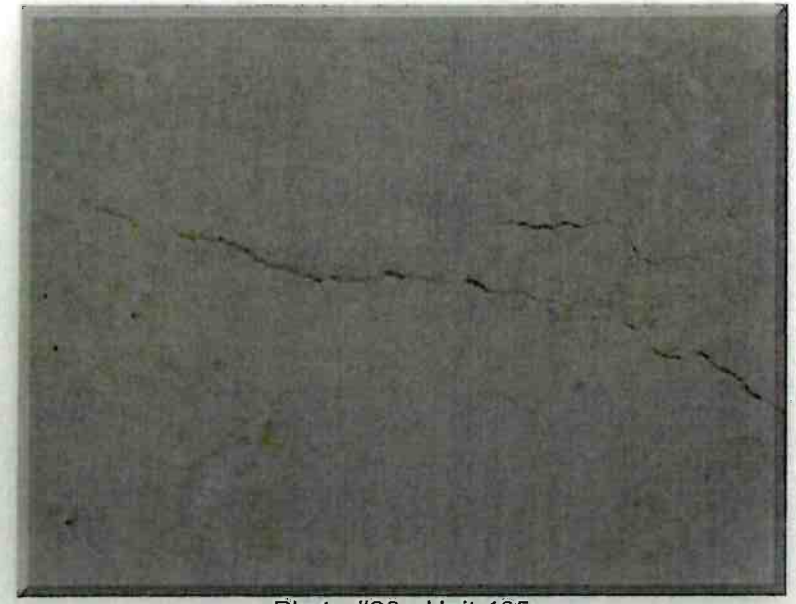

Photo #29 - Unit 405

Photo #30 -

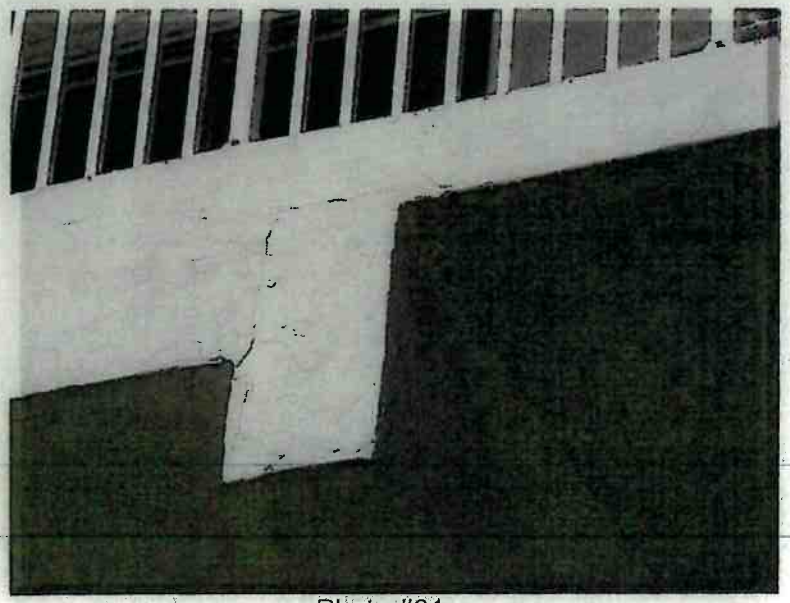

Photo #31 -

Photo #32 - Unit 601

Photo #33 -

Photo #34 - Unit 706

Photo #35 - Exterior

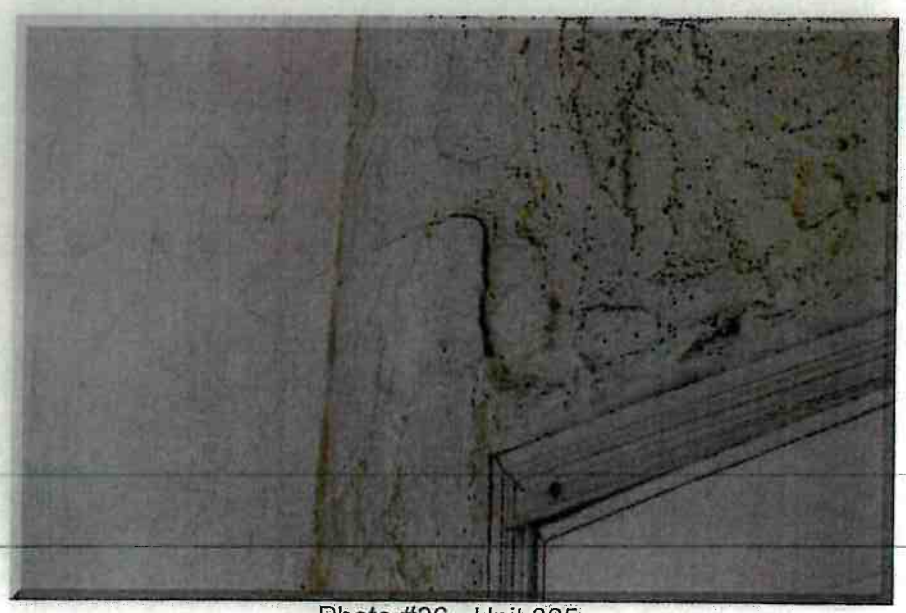

Photo #36 - Unit 305

Photo #37 - Unit 704

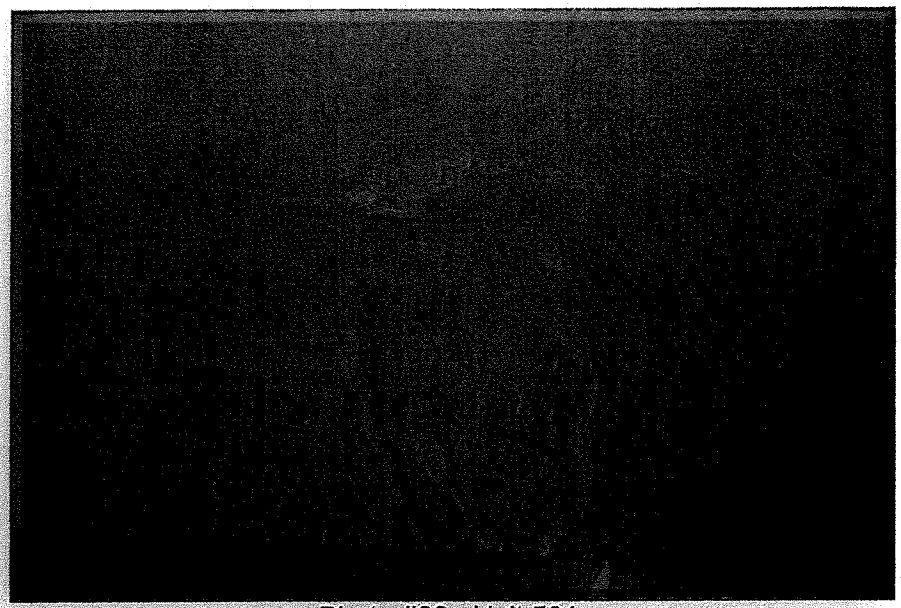

Photo #38 - Unit 501

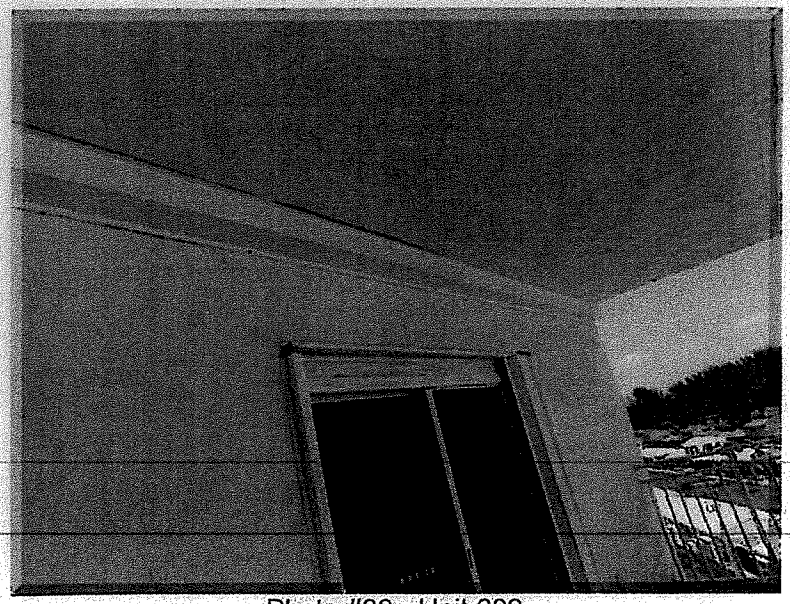

Photo #39 - Unit 602

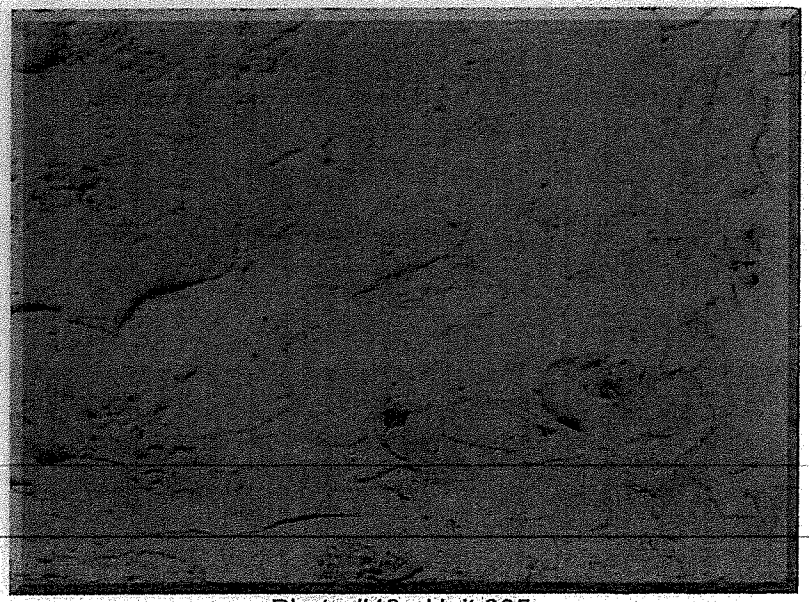

Photo #40 - Unit 805

Photo #41 - Unit 404

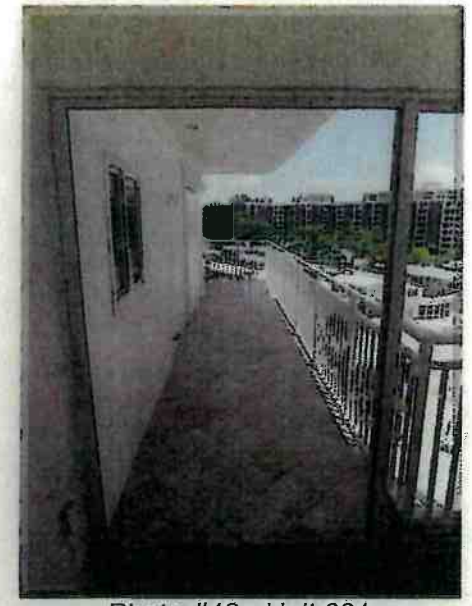

Photo #42 - Unit 601

Photo #43 - Unit 302

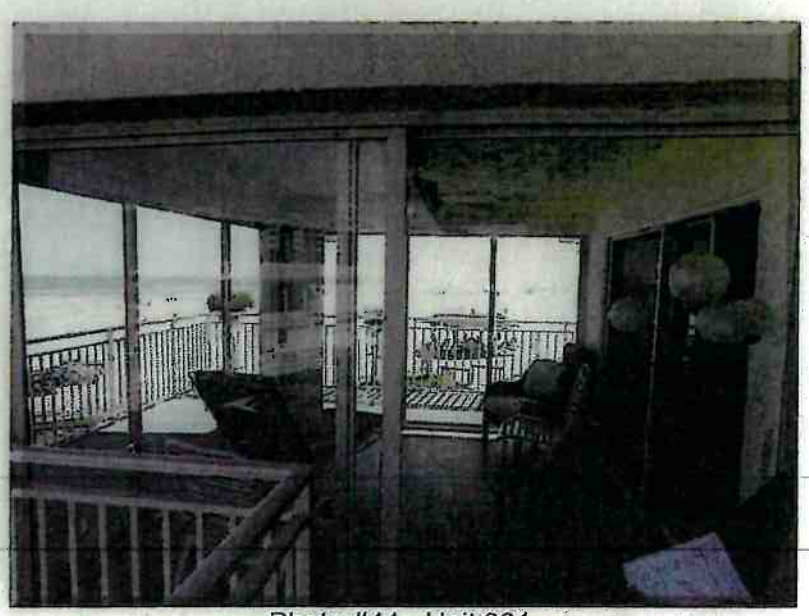

Photo #44 - Unit 201

Photo #45 - Lobby

Photo #46 - Lobby

Photo #47 - EIFS

Photo #48 - EIFS

Photo #49 - EIFS

Photo #50 - EIFS

Photo #51 -

Photo #52 -

Photo #53 -

Photo #54 -

Photo #55 - Exterior

Photo #56 - Ground Floor

Photo #57 - Exterior

Photo #58 - Exterior

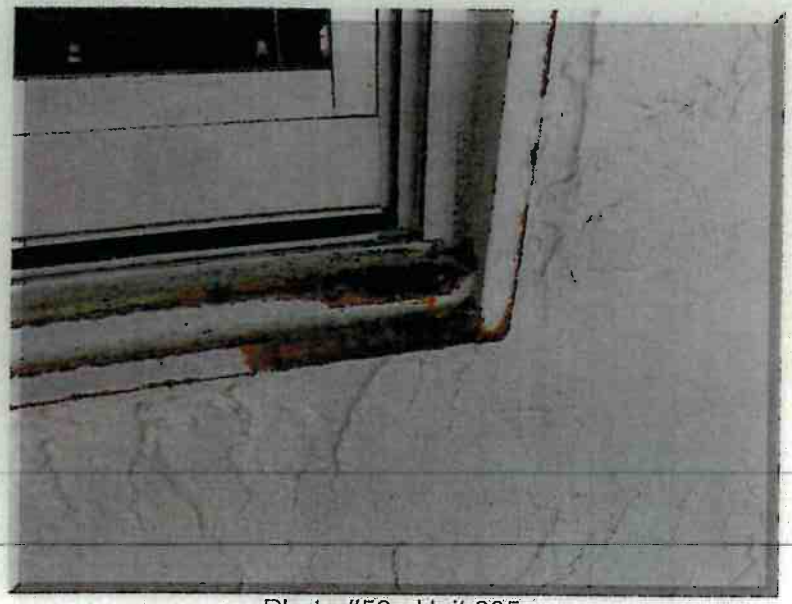

Photo #59 - Unit 205

Photo #60 - Unit 402

Photo #61 -

Photo #62 -

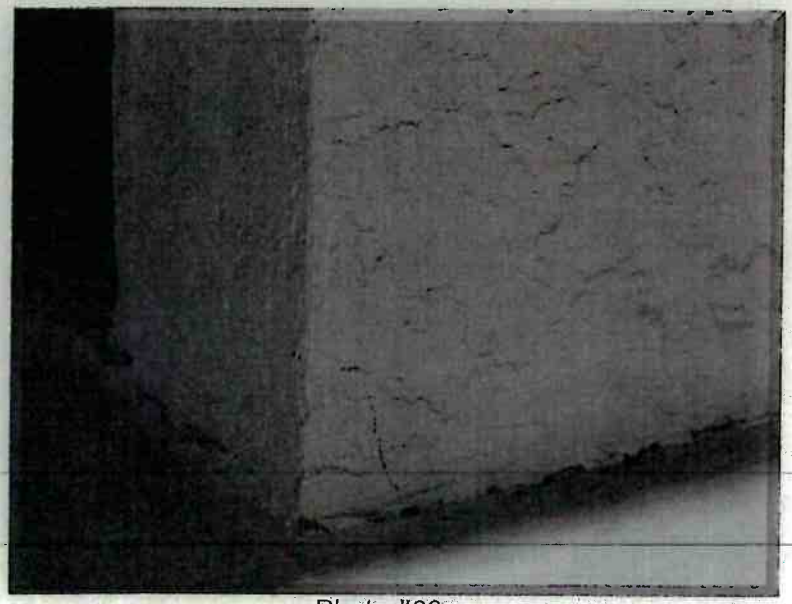

Photo #63 -

Photo #64 -

Photo #65 -

Photo #66 -

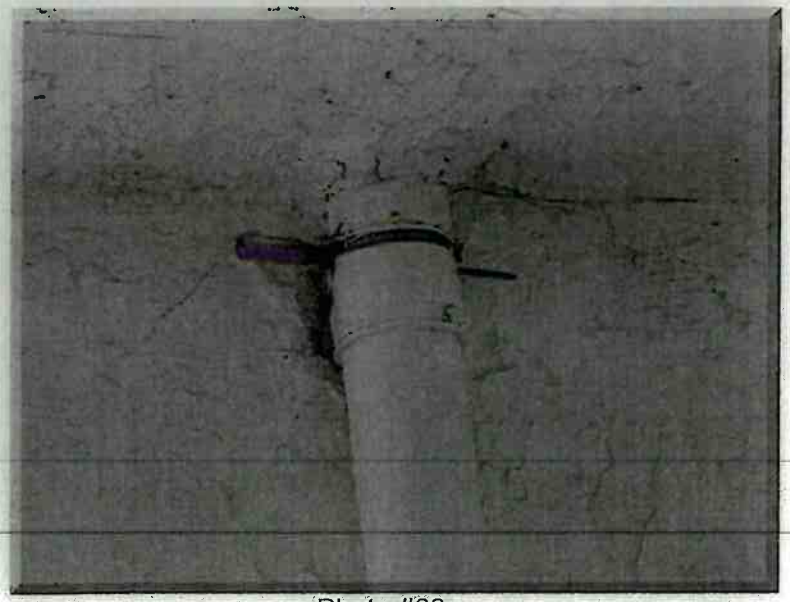

Photo #68 -

Photo #69 -

Photo #70 -

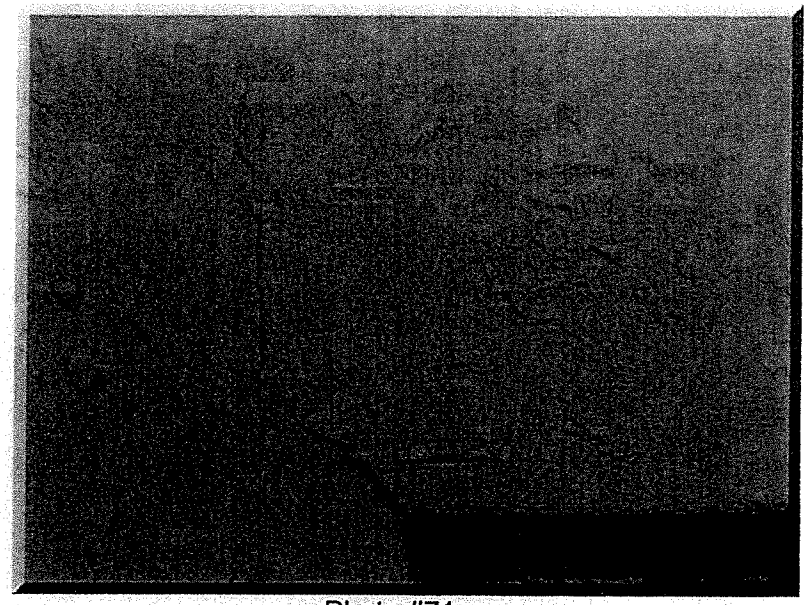

Photo #71 -

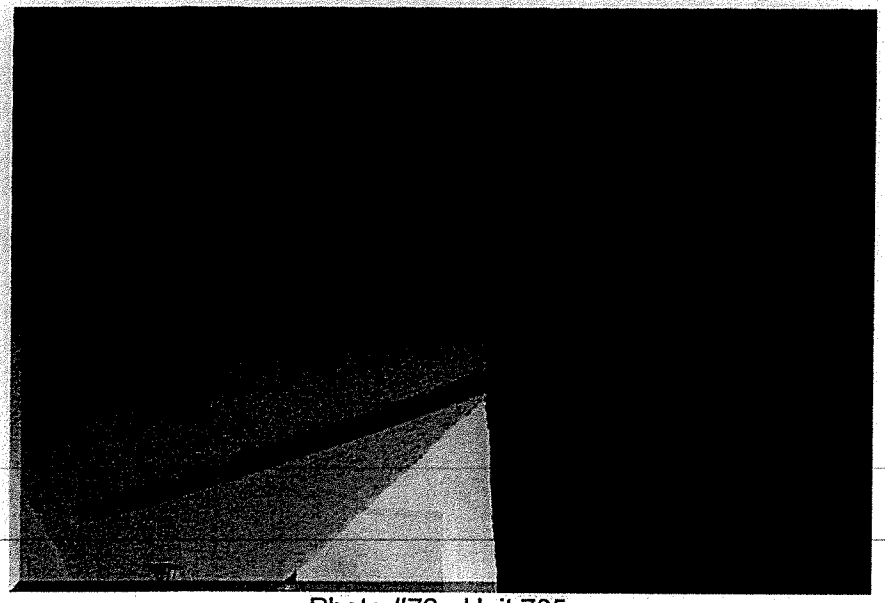

Photo #72 - Unit 705

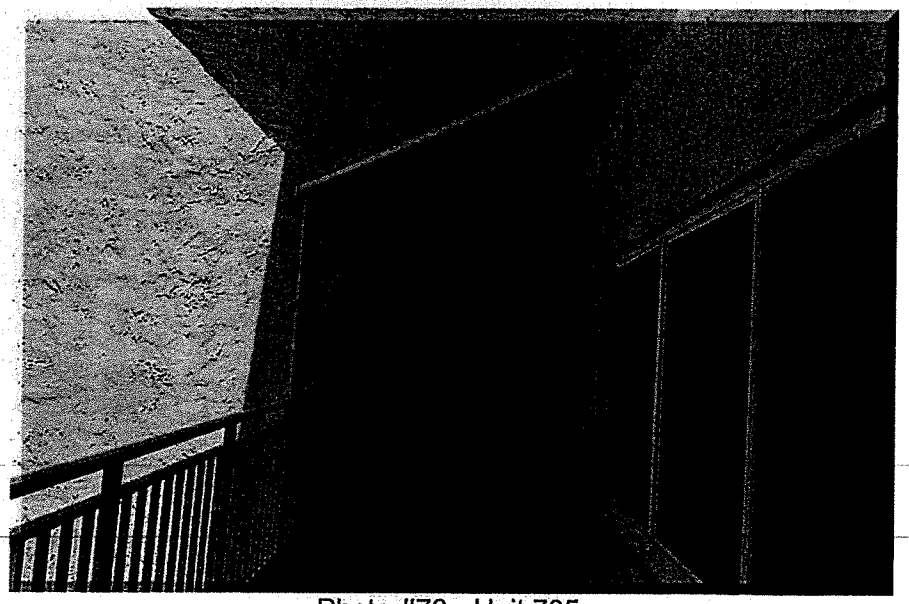

Photo #73 - Unit 705

Photo #74 - Unit 705

Photo 75 - 2" core showing membrane & insulation

Photo 76 - Membrane glued to paper backing. Plate & screw fastening insulation to the concrete deck.

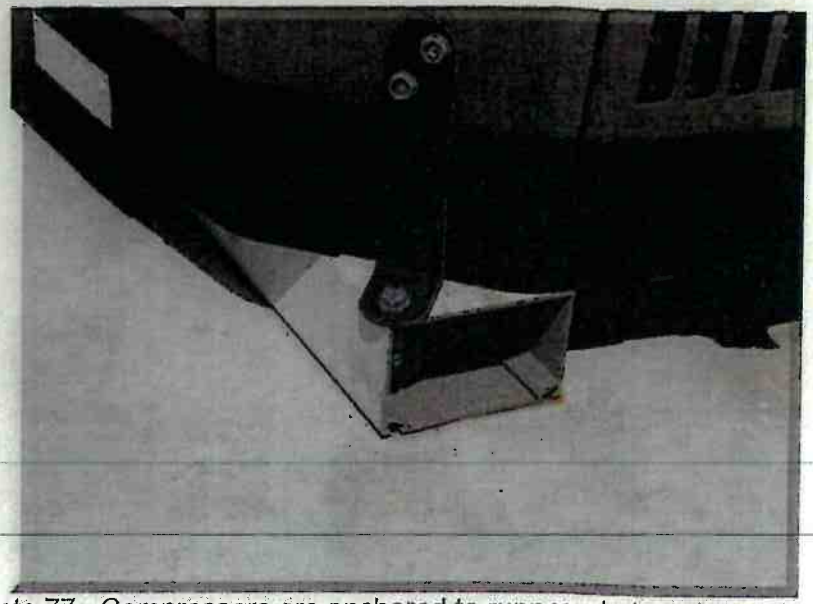

Photo 77 - Compressors are anchored to runners, but runners are not anchored to the roof.

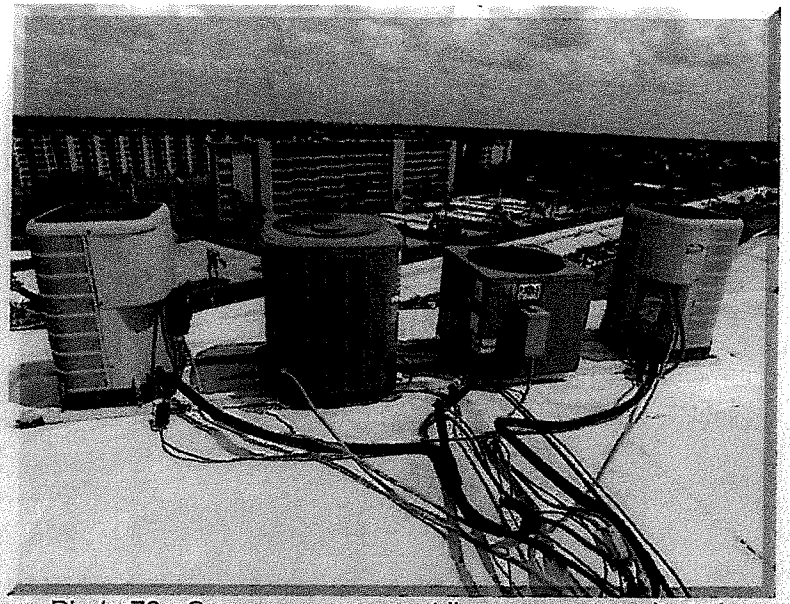

Photo 78 - Compressor support lines are not anchored.

Photo 79 - Lobby - South Entry

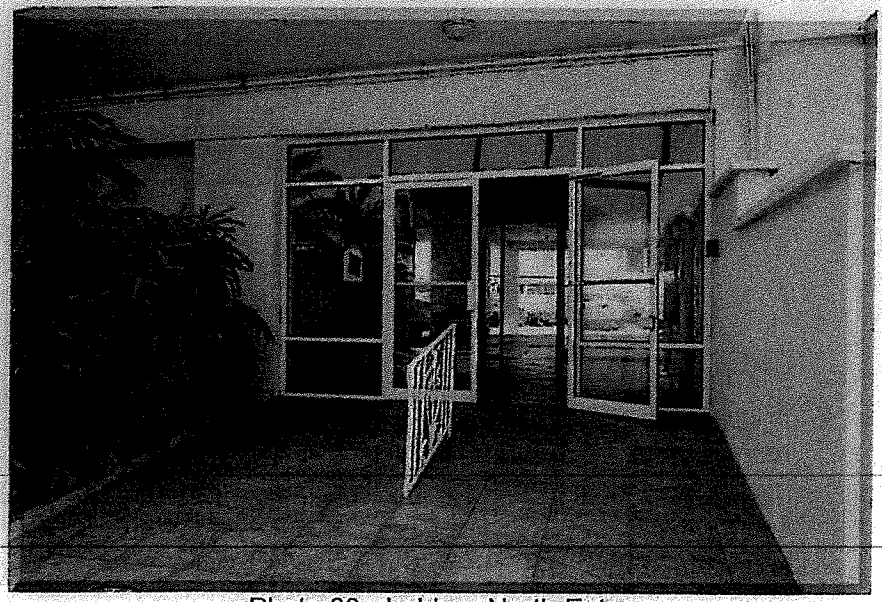

Photo 80 - Lobby - North Entry