**For :** TRW & Associates
9913 US Hwy 41 South
Tampa, Fl 33534

**Project** : Bank Of America #5133
5651 E. Lancaster Ave.
Ft. Worth, Texas 76112

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For : TRW & Associates

Project : Bank Of America 5651 E. Lancaster Ave. Ft. Worth, Texas 76112

A roof inspection and infrared thermal scan was performed at the above referenced property on April 8, 2010 during the evening hours and a follow up inspection was made on Monday April 12, 2010 to verify and to identify any problem areas on the existing roof.

The Bank manager showed 2 areas of concern, where stained ceiling tiles were evidence of past or present roof leaks. This area was below the west section of the building where the drive through tellers conduct business.

The existing building is divided into three main sections with a 2 story and two lower sections on the east and west. Two other small sections are A/C well and ATM.

Two core samples were taken on 4-12-10 to verify the moisture content and the type of insulation below the roof membrane. The existing roof is an APP heat welded modified membrane over a standard fiberglass base sheet. The existing insulation is a poured light weight concrete approximately 3'' thick. The deck type was not checked but believed to be a standard corrugated vented type metal deck made for light weight concrete. The core sample taken on the west low roof was totally saturated with moisture. The depth of moisture appeared to be the entire 3'' of concrete. A photo in this report will show the specific area. Core sample # 2 was taken on the upper middle roof and showed dampness but not total saturation. Additional photos will show the specific area further in this report. Moisture below the roof membrane was indentified with the Infrared Thermal Imaging Camera, A Tramex Moisture Meter, and by visual core samples. The problem areas were marked on the roof with yellow stripping paint for future reference.

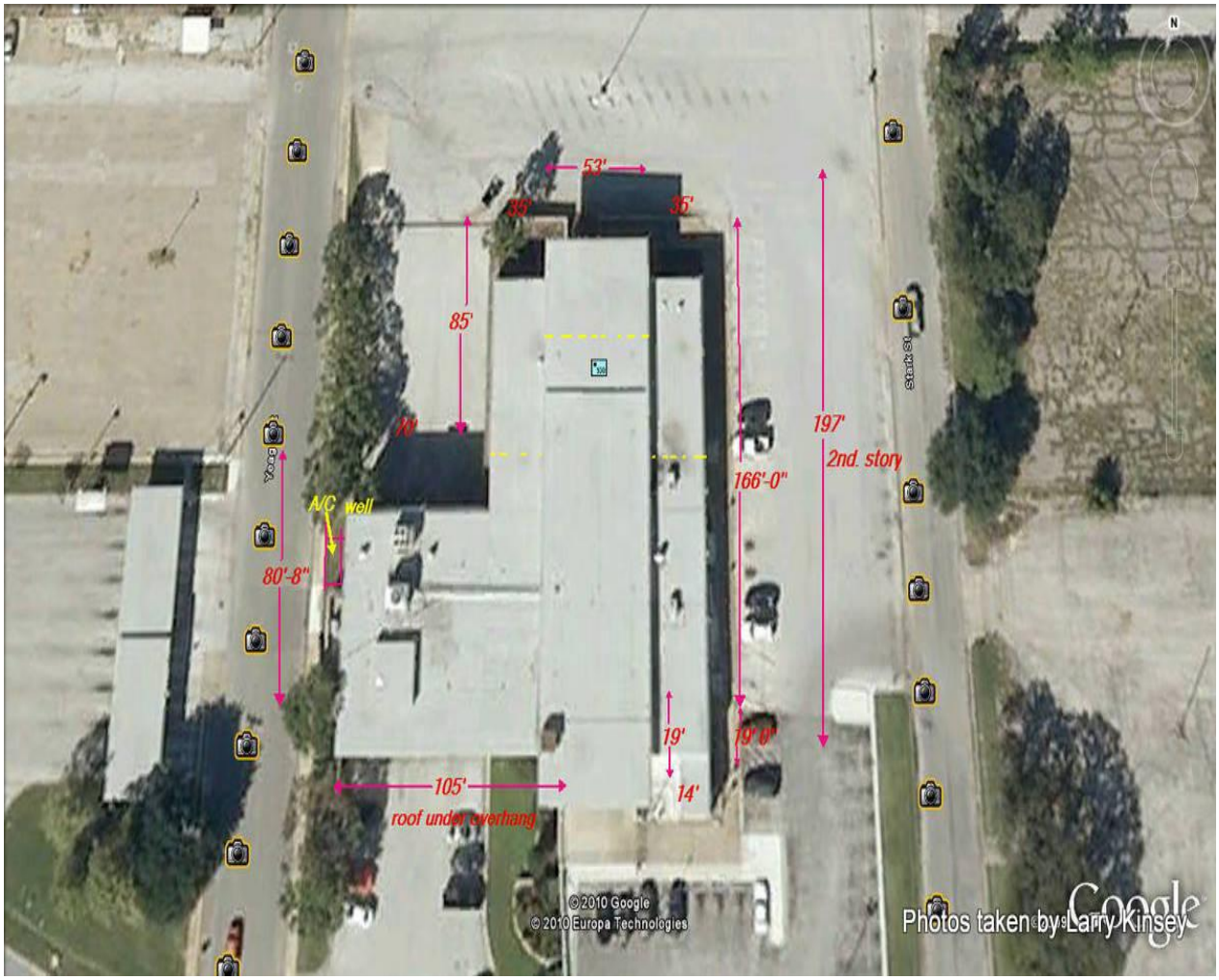
The low roof on the west side has numerous splits and is allowing water to seep into the poured light weight insulation. Also noted were impact marks that breached the membrane and most likely were hail impacts from previous storm damage.

Additional photos will show a deteriorated facia that surrounds the entire perimeter of the eaves. There have been numerous repairs along the lower eave flashings and nails are backing out of the metal. Moisture is seeping into the wall cavities in these locations through the joints and nails. There is some spalling and paint peeling in these areas with visible stains around the building exterior.

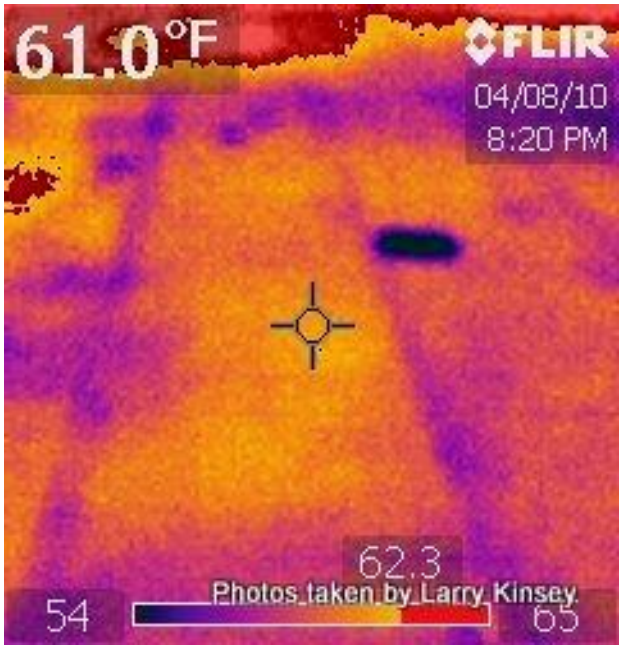
**Project Note**: The existing roof was not installed according to manufacture specifications. A venting type base sheet and 2 way relief vents should have been used at a minimum. Also many of the end laps were not lapped as per manufacture specifications especially where the roof starts and stops at the end of a run. Some of the existing expansion joints were covered over and not installed correctly.

The following pages will show the infrared and digital images taken for this report..

## Aerial View Of Roof



| Photo # 1 | Description [ wet #1 ] |
|---|---|
|  | Core sample photo taken on west low roof. This area was verified as total saturation of moisture. The sample was taken approx. 15 ft. from the south eave of roof.<br><br>The care sample was retained for any future reference. The roof consists of one ply of fiberglass base sheet and one ply of modified APP membrane that was heat welded. This is considered as a 10-12 year type roof<br><br>Core samples were repaired with plastic cement and fiberglass membrane |

| I-R Photo # 2 | Description |
|---|---|
|  | This is the corresponding photo to the above photo taken from a distance to encompass the area. The lighter colors in the I-R photo show the heaviest concentration of moisture below the roof membrane.<br><br>This same area has openings in the modified membrane and will require some immediate repairs. There is evidence of previous impact marks from possibly old hail damage. |

| Photo # 3 | Description [ wet # 2 ] |
|---|---|
|   | This area was determined wet using the infrared camera and followed up with a non destructive moisture meter.<br><br>This area is on the west low roof adjacent to the raised penthouse on northwest corner.<br><br>The penthouse roof was checked with a moisture meter and was dry. There is evidence that 2 layers of roofing were applied over the penthouse roof. |

| I-R Photo # 4 | Description |
|---|---|
|   | The corresponding I-R photo verifies moisture along the penthouse base.<br><br>All areas were marked with stripping paint to verify field conditions and areas where moisture was located. |

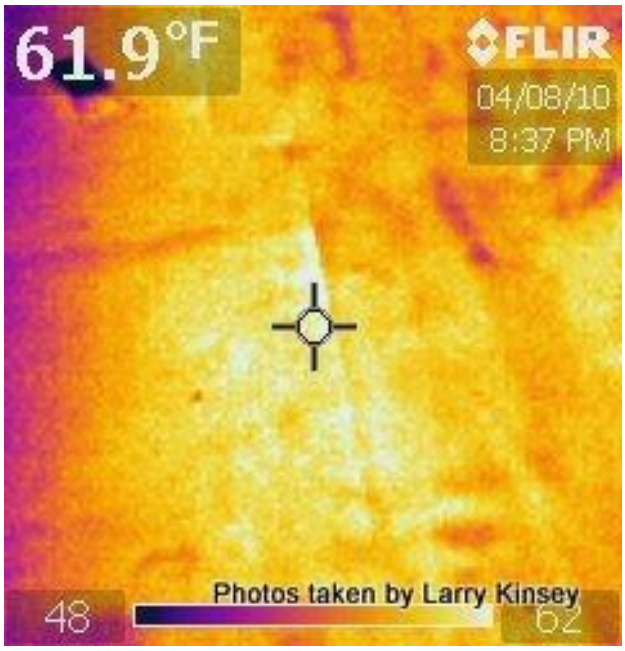
| Photo # 5 | Description [ wet # 3 ] |
|---|---|


Wet # 3 was taken in same general area on the west roof approx. 80 ln. ft. from west eave and 60 ft. from south eave.

A moisture meter was used to verify digital photo. There are some open areas through the membrane that allow moisture to penetrate the membrane.

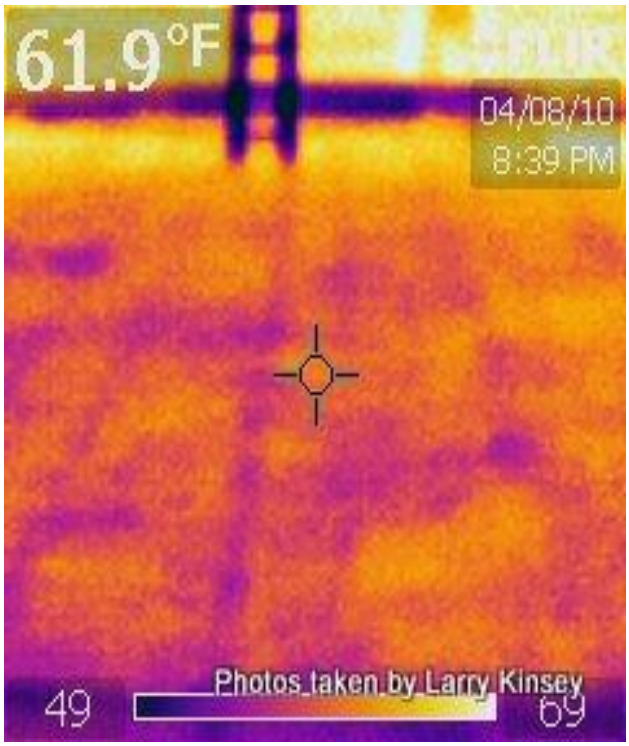
It is recommended that the underside of decking be inspected in the interior attic for any rusting due to extended periods of moisture in the light weight insulating concrete fill.

| I-R Photo # 6 | Description |
|---|---|

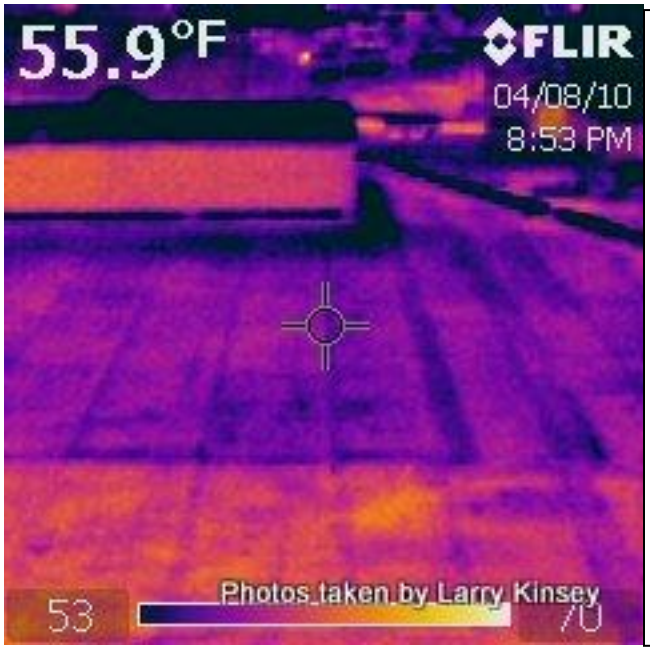



This corresponding photo to the above shows total saturation below the membrane and was verified with a Tramex Moisture meter during the follow up inspection.

| Photo # 7 | Description [ Wet # 4 ] |
|---|---|
|   | This area is noted on roof and is near the expansion joint on north side of low roof next to the overhang. The moisture content was saturated in this area. |

| IR Photo # 8 | Description |
|---|---|
|   | This IR photo is a general overview of the moisture laden area corresponding to the same as photo above.<br><br>Most of the roof area on west roof had some form of moisture penetration. The light weight concrete fill has been acting as a sponge and slowly accumulating moisture below the modified membrane.<br><br>The lighter color shows the heaviest concentrations.<br><br>There didn't seem to be any concentrations north of the expansion joint that divides the roof off set. |

| Photo # 9 | Description |
|---|---|
|   | This view is looking west towards the end of the low roof. With exception to the small pent house roof , most of this area had moisture below the membrane.<br><br>The IR photo below shows a very good view of the thermal image. |

| IR Photo # 10 | Description |
|---|---|
|   | This corresponding IR shows an over view of the thermal image relating to the above location<br><br>It also shows moisture below the previous patch work.<br><br>All areas were verified with a Tramex moisture meter. |

| Photo # 11 | Description [ 2 story level ] |
|---|---|


This area is located towards the front of the 2 story portion at the northeast corner of the fireplace.

A core sample was done nearby and was the same roof type and system as described in the report.

Was verified with meter.

| I R Photo # 12 | Description @ Chimney |
|---|---|

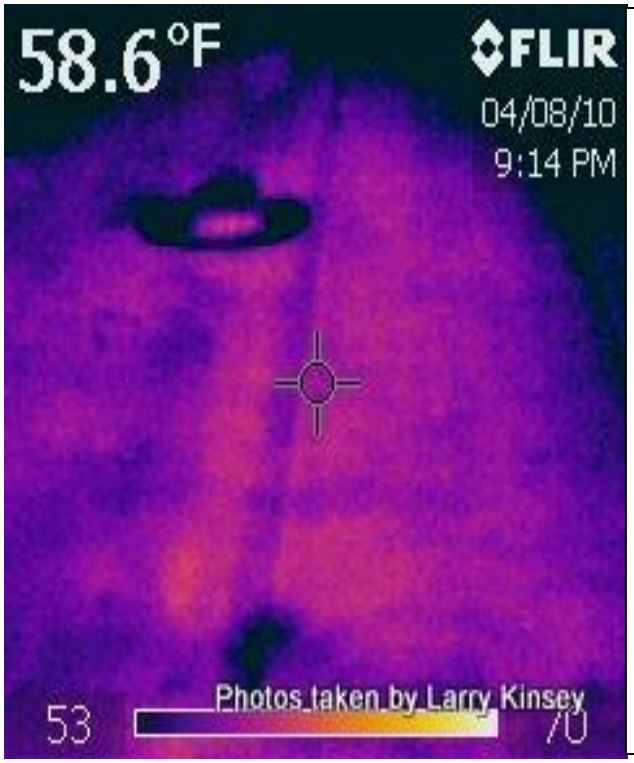

The corresponding IR photo shows a heavy concentration of moisture in the corner then a gradual decrease with the lighter shades migrating to black, which indicates a dry surface.

| Photo # 13 | Description [ 2 story level ] |
|---|---|


This location is marked as # 8 on the upper roof near a roof drain.

The moisture meter shows that the light weight concrete was damp.

| IR photo # 14 | Description [ 2 story ] |
|---|---|

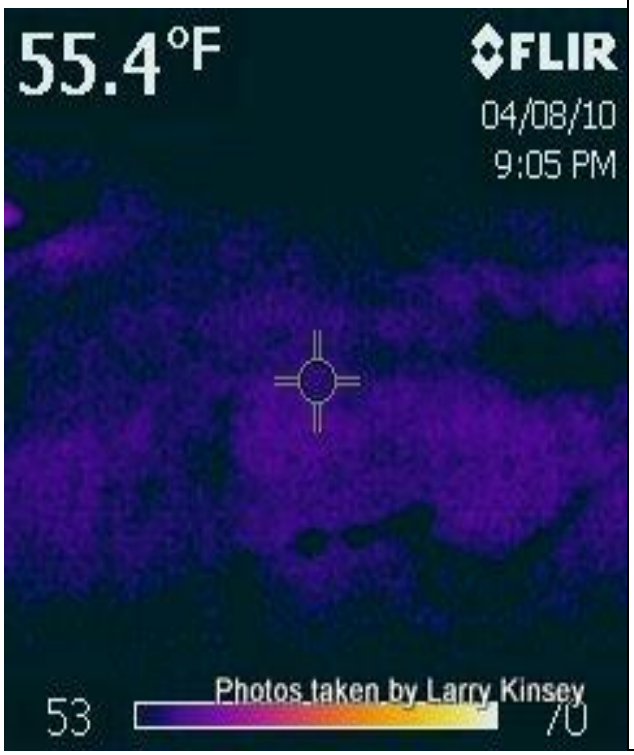



The IR photo confirms moisture below the membrane but not as concentrated.

A core sample was taken nearby within 8-10 ft and the deck surface was damp but not saturated.

Core sample was retained for reference and repaired with plastic cement and fiberglass membrane.

| Photo # 15 | Description [ 2 story ] |
|---|---|
|   | This location is towards the north end of the 2 story portion adjacent to the roof expansion joint.<br><br>The area is marked as # 9 for future reference on the roof. |

| IR Photo # 16 | Description |
|---|---|
|   | The Infrared here shows dampness and was not totally saturated unlike the lower roof.<br><br>It was noted that the end laps running across this roof were not installed according to manufacture specifications.<br><br>As shown in the photo the color changes with the extent of moisture. |

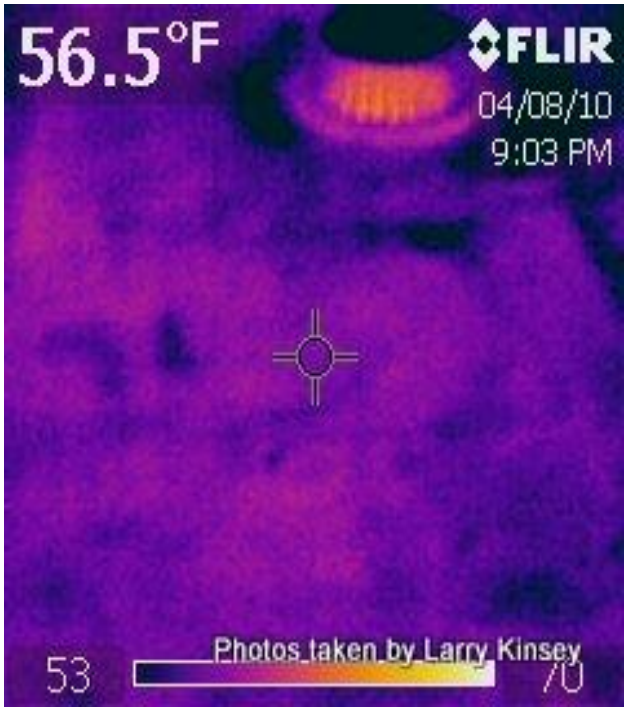
| Photo # 17 | Description [ 2 story ] |
|---|---|


This digital photo shows and area # 10 marked on roof near a roof drain on the west side of upper roof.

Moisture concentration and verification was made with a moisture meter.

Evidence of previous patch work indicates previous leaks.

| IR photo # 18 | Description 2 story |
|---|---|




IR photo # 18 shows dampness around and near the roof drain.

Upon inspection it was noted that not all drains had lead flashings and this will contribute to roof leaks around drains.

The manufactures require leads around all drains with modified membranes.

| Photo # 19 | Description east low roof |
|---|---|
|   | Photo # 19 shows a wet section on the east low roof towards the front of building.<br><br>Also circled in the photo is what could be deemed as a large hail impact. These impact marks are sporadic on the roof with the worst being on the west low roof.<br><br>The impact mark has totally fractured the membrane.<br><br>There did not seem to be any concentration of moisture north of the adjacent expansion joint towards the opposite end of this photo. |

| IR Photo # 20 | Description east low roof |
|---|---|
|   | This IR is looking across the general area noted above. |

Aerial View Of Roof Marked With X's Indicating Locations Of Wet Insulation


**End of Report April 14, 2010 Prepared by Larry Kinsey**

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