



JUN 06 2014

May 29, 2014

Mr. Mike Smithyman  
Director of Operations  
Bioscience and Technology Business Center  
2029 Becker Drive  
Lawrence, Kansas 66407

Reference: Bioscience and Technology Business Center  
West Facility  
Located on Bob Billings Parkway - Lawrence, Kansas

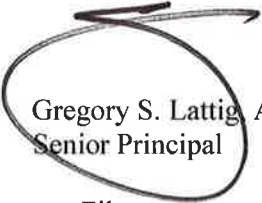
Dear Mike:

We appreciated the opportunity to develop a program and master plan for your west facility. In the development of our study we made several site visits to review the condition of existing building systems. One of the building systems we reviewed was the existing ballasted roof and roof flashing. The existing roof and metal flashing are both in severe need of replacement. Roof leaks are already evident in the building and will likely become more prevalent if the roof is not replaced in the near future.

We would recommend that the existing ballasted roof system be replaced with a fully adhered membrane roof. Our rationale for this recommendation is that leak detection in ballasted roof systems can be very problematic and difficult to trace. We also recommend that all existing flashing be removed and replaced as part of the new roof installation.

We wanted to express our concerns to you in writing so that the issue can be properly addressed as soon as possible. If you have any questions please feel free to contact us at your convenience.

Sincerely yours,



Gregory S. Lattig, AIA  
Senior Principal

cc. File



## 4950 Research Parkway

### Existing Roof Report and Budgets to Replace

This report will show some of the details and failures of the existing roof and wall assembly and why they have failed.

Photos of existing conditions will be included to show where water has infiltrated the roof assembly. With the replacement of this existing roof assembly this creates the perfect opportunity to correct the shortcomings of this assembly.

The existing roof that is on this facility is a ballasted 60 mil EPDM membrane, with rigid insulation under the membrane. The current "R" value is 20 and this is what should be the minimum of insulation with the new roof assembly.

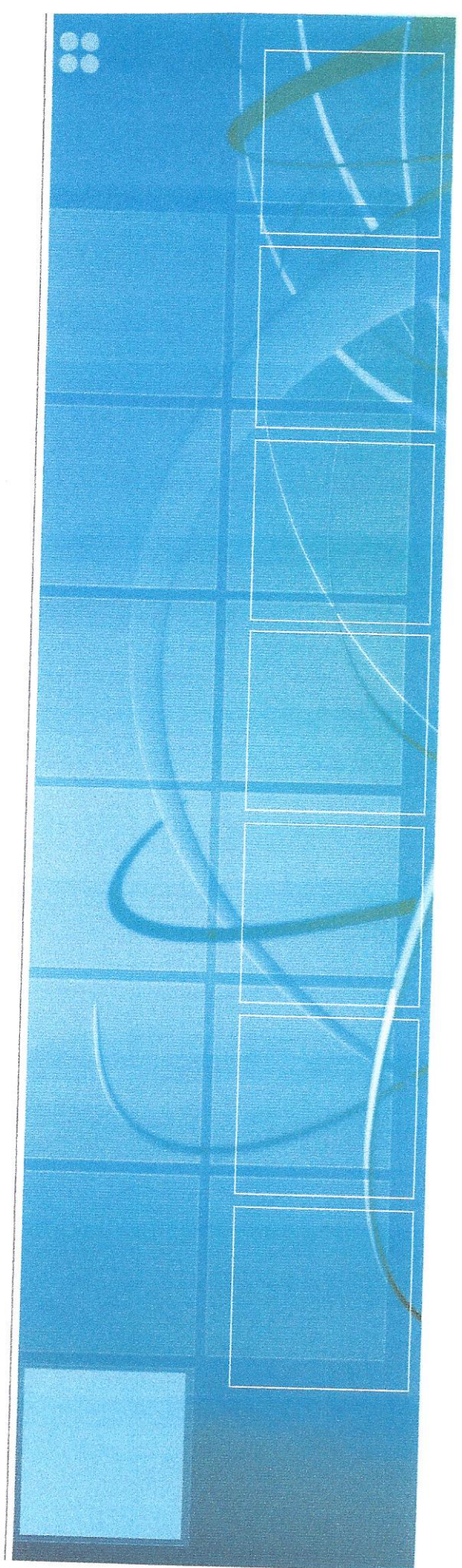
With the roof study that was completed; the walls above the roof were also inspected at this time. Several items were found with wall details that will also need to be addressed at the time the roof is done to protect the new roof assembly.

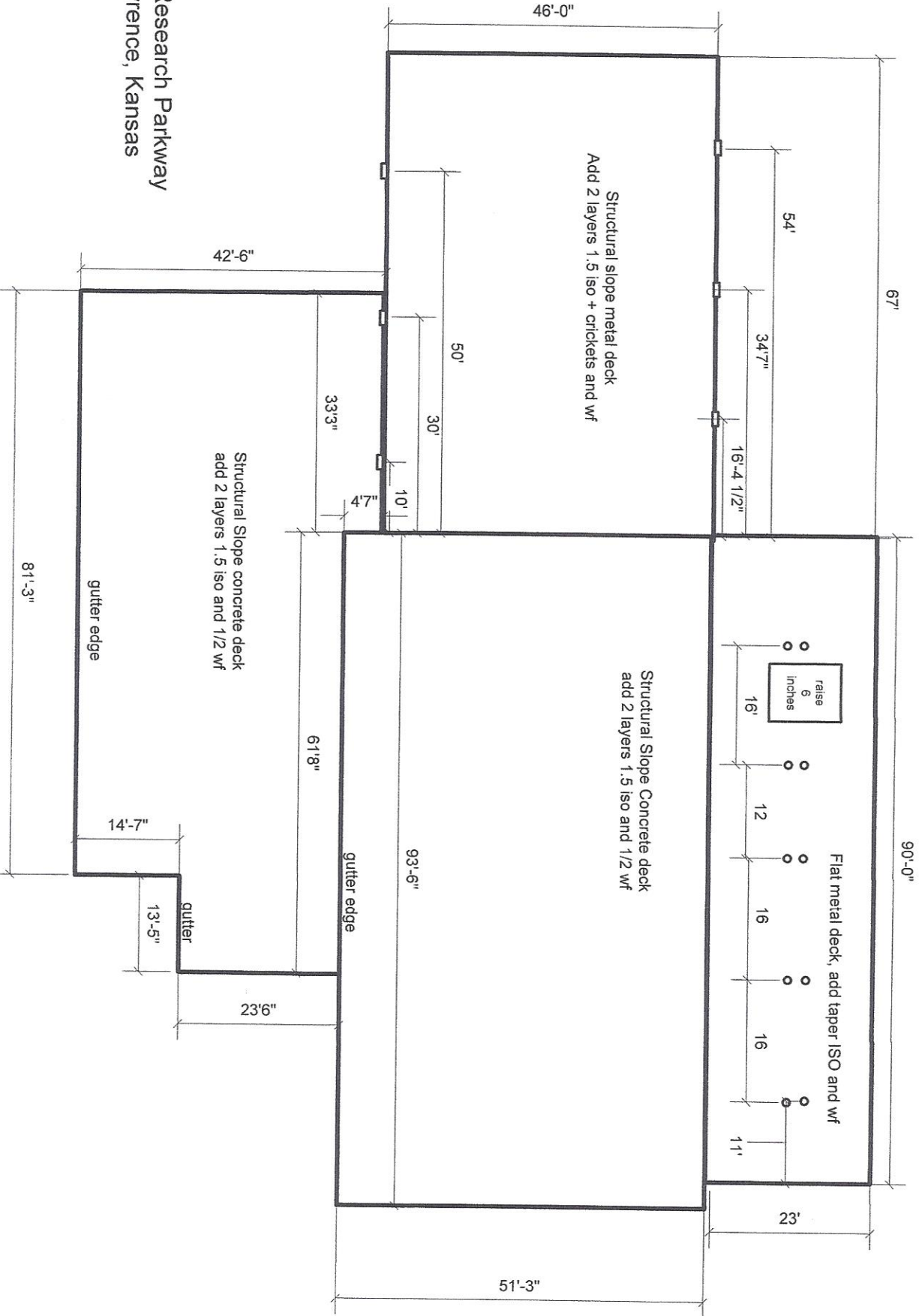
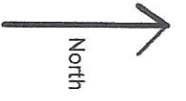
This report has been completed by;

Greg Leslie

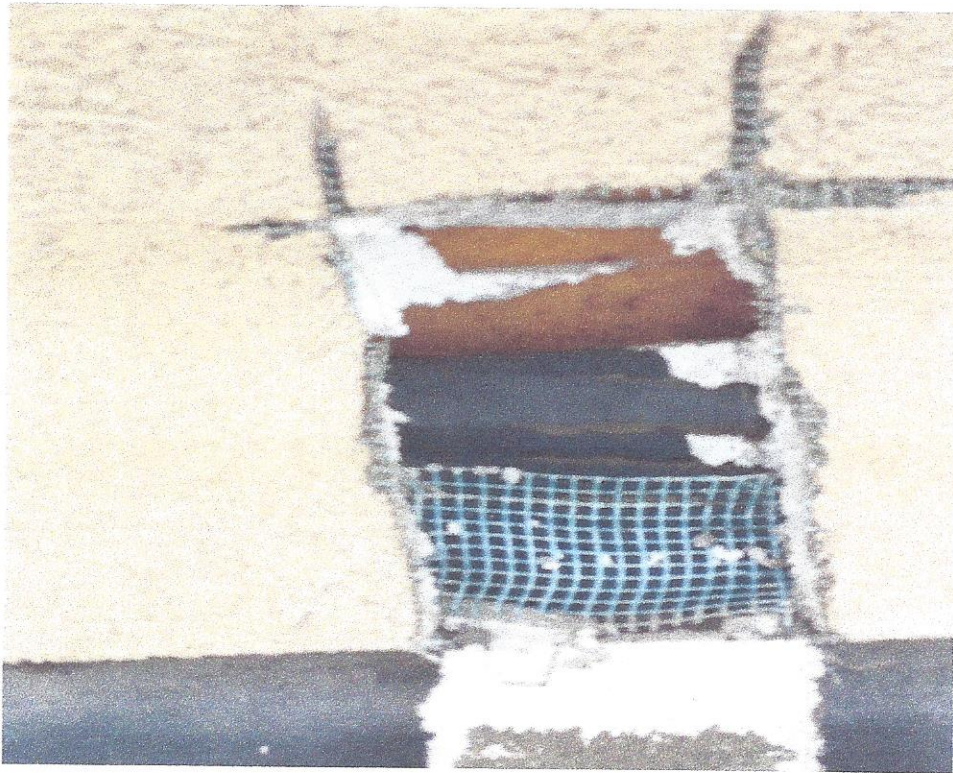
Technical Consultant

The Garland Company, Inc.





4950 Research Parkway  
Lawrence, Kansas

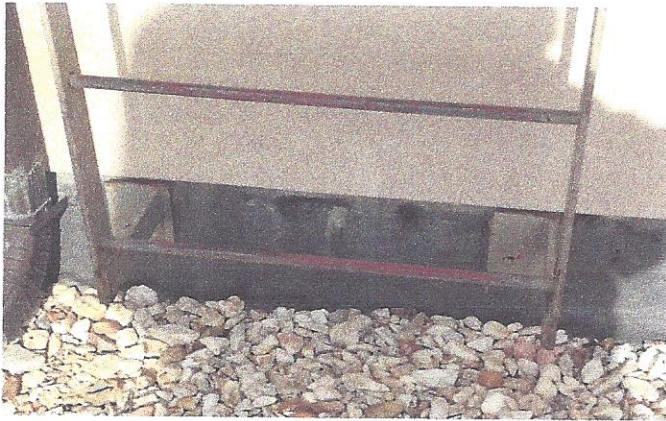


The ballasted EPDM roof was flashed up and under the EFIS (Exterior Finished Insulated System). The roof membrane was not secured to the back-up wall properly at the time of installation. With the shrinkage of the membrane; the EFIS wall covering was pulled away from the back-up wall and fractured the insulation in this assembly. As you can see in the photo, any water that get into the EFIS wall system will run down the back up wall and directly behind the roof membrane flashing and into the roof assembly and subsequently into the building.

At the very least, when a new roof assembly is installed, the EFIS system will have to be cut back a minimum of 10-12 inches above where the base of the system is currently. A second and better option would be to remove the EFIS system above the roof membrane areas and replace decorative insulated wall panels. This would eliminate needed repairs to the EFIS system in many areas around the facility.



There are many areas around the EFIS wall assembly that are open and allowing water to enter the assembly. This also allows the insulation to get wet causing it to lose its insulating properties as well as freeze up in the winter causing further damage to the EFIS.



When secondary items were installed, mechanical fasteners were run directly through the base flashings of the membrane. This should never happen. These types of details would be corrected at the time of the new roof.

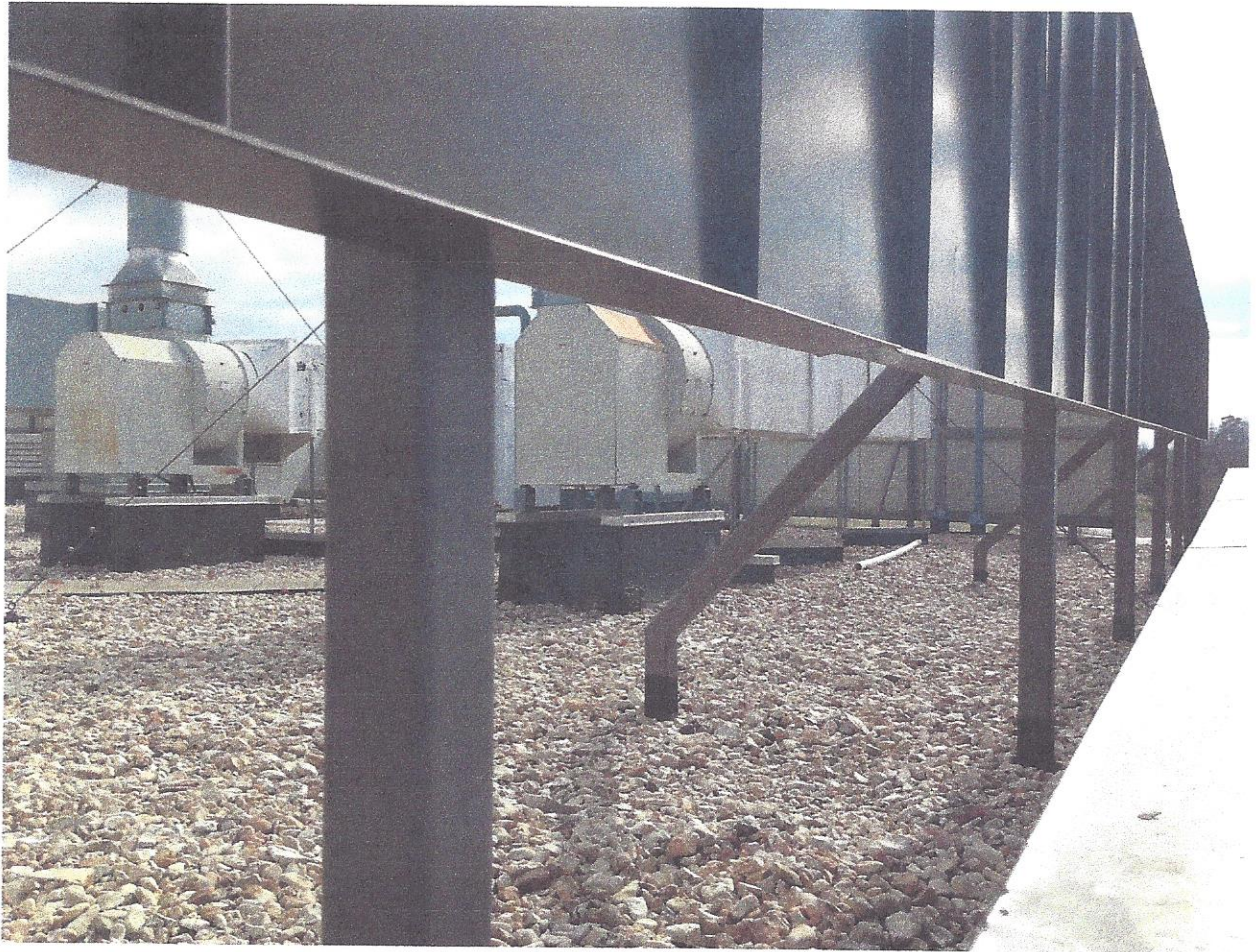


The short masonry wall on the south side of the facility appears to have the weep holes in the brick covered up by the existing roof; or they were never installed. This is another area where the interior could be showing up as a leak. It appears that someone attempted roof repairs on the membrane with an asphalt product that is not supposed to be used on this type of roof.



The mechanical unit on the north roof area is not high enough above the roof to flash properly. This unit would need to be raised about six to eight inches above the existing height. NRCA recommends that all mechanical curbs be a minimum of eight inches.





The upper roof has many different penetrations that will have to be flashed. This area will be very time consuming with all of the specific details work. It will be critical that all flashings are properly designed and installed to keep this area dry and maintenance free.

## Solution Options and Budgets

1. Remove existing roof assembly down to the deck and properly dispose of all debris. Install an R-20 rigid insulation system over the cleaned structural decks. Install a 20 year SBS modified asphalt roof assembly over top of the new insulation. Install new metal coping caps to the tops of parapet walls and new metal counter-flashings to the new roof membrane flashings. Repair the EFIS system that was fractured by the existing roof.  
Budget: \$241,000.00
2. Remove existing roof assembly down to the deck and properly dispose of all debris. Install an R-20 rigid insulation system over the cleaned structural decks. Install a 30 year SBS modified asphalt roof assembly over top of the new insulation. Install new metal coping caps to the tops of parapet walls and new metal counter-flashings to the new roof membrane flashings. Repair the EFIS system that was fractured by the existing roof.  
Budget: \$269,000.00
3. Remove existing roof assembly down to the deck and properly dispose of all debris. Install an R-20 rigid insulation system over the cleaned structural decks. Install a 30 year SBS modified asphalt roof assembly over top of the new insulation. Install new metal coping caps to the tops of parapet walls and new metal counter-flashings to the new roof membrane flashings. Install new metal wall panels on all walls above the roof membrane with an R-10 insulation value.  
Budget: \$314,000.00