

M. Gottfried, Inc.

Roofing and Sheet Metal Contractors

89 Research Drive, P.O. Box 2218, Stamford, Connecticut 06906-0218
PHONE: (203) 323 8173 Website: mgottfried.com FAX: (203) 359 2498

TO: Viking Construction, Inc.
1387 Seaview Avenue
Bridgeport, CT 06607
ATTN: JoAnn Michaels

DATE: August 14, 2019

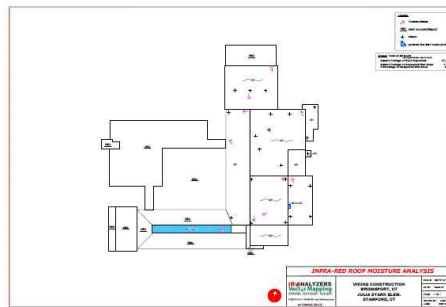
RE: Roof report and repair quotation
Julia Stark Elementary School
398 Glenbrook Road
Stamford, CT 06906

Dear Ms. Michaels,

As per your request we went to the above school to perform an inspection of the roofs, and, using the Infrared Thermographic Roof Moisture Analysis Report as a guide, look for possible sources of water leaks in the noted "wet areas". We also were to perform test cuts to verify the wetness and determine the roof components in those areas. We were also asked to provide pricing on replacing the wet areas, and to provide a recommendation and pricing for roof maintenance.



Roof Layout with warranted roofs labeled



Infra-Red Drawing showing wet areas

We were provided with two active warranties on the roofs at Stark School. One warranty (from GAF) covers a smaller gravel surfaced BUR. This warranty expires in August of 2023. The infra-red scan showed one small wet area on this roof against the wall of the adjacent higher section. The other warranty (from RPI) covers a much larger area of the roof and spans 3 roof areas. An overall look at the roofs of the school and the moisture scan shows the roofs to be in relatively good shape, with only one roof area (at the top of the slate roof) that is entirely wet and needs replacement.



Roof with labeled roof areas

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Roof Area A



Roof area A is an adhered EPDM roof. It is in good condition. All laps and membrane flashings appear tight and sealed. The issue we found on this roof level deals with the caulking at the reglet flashing in the stone wall.



The metal reglet flashing is wide, probably to account for the variable thickness of the stone. The caulking used to seal the joint has separated and deteriorated. The old caulking should be cleaned and new caulking installed.

Roof Area B



Roof area B is part of the RPI warranted roof areas. The roof is in good shape. We did find a couple of holes in the roof that should be repaired as soon as possible.

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One item that we noticed on this roof area, as well as with all of the RPI roofs, is that the perimeter metal edging flange is 4" and the membrane cover-strip is only 5". This does not leave much of an overlap on the field sheet on top of the parapets. No action needs to be taken for this detail, and the roof is under warranty, but this detail should be monitored and if signs of peeling or cutting at the back edge of the metal are seen RPI should be contacted immediately.

Roof Area C

Roof area C is a gravel surfaced BUR and we believe it is covered by the GAF warranty. The roof is 16 years old and in need of roof maintenance.



Flashing on the roof curbs need to be checked and patched. Some open corners were found on the curbs. The filler in penetration pockets has settled and needs to be topped off. It looks like there have been previous problems at the above roof drain. It has been patched and coated. The flashing needs to be inspected and the lead needs to be checked to see if it has worn out. If problems are seen with the flashing, the existing materials should be removed, new lead installed and the drain reflashed.

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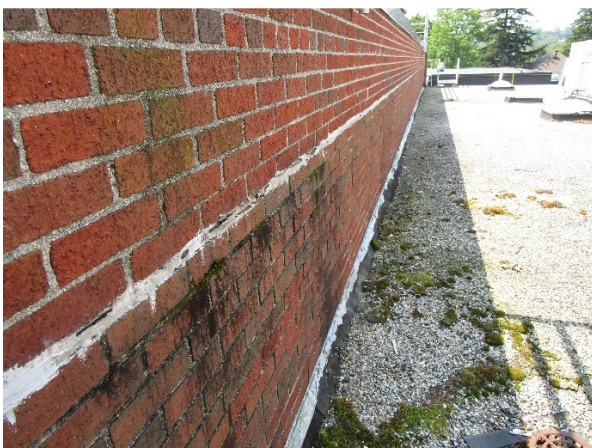
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Wet area



A small wet area was marked out against the wall of the higher section. The base flashing is very low at this wall, and the area marked is at a high point of the roof, making the flashing even shorter. The wet area should be removed and replaced, new base flashing installed, and a termination bar installed at the top of the base flashing. Further down the wall from here we found that the base flashing at the wall has been coated. All the base flashing should be checked and repaired as needed.

Problems with the wall



The rising wall above this roof area does not look to be in good shape. There is moss and organic growth on it, there are cracks in the wall and a large joint or crack has opened, been caulked and the caulk has failed. Wall conditions must be addressed to keep water out of the building. Problems in the wall may also be contributing to the water getting into the roofing system.

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Roof Area D



Roof area D is a fully adhered EPDM roof. It is in relatively good shape, but basic roof maintenance is needed. This would include checking/patching corners on curbs, checking vent flashings, drains, etc., We did find a few items that need more attention.

Reglet flashing



The reglet flashing that goes around the roof at the rising walls needs to be recaulked. The caulking is cracked and open. At one area of the wall it looks like a penetration was removed and the wall has not yet been filled in. We were able to see that the metal reglet flashing only goes in the wall joint a little, and it is flat, rather than turned up at the back. The lack of depth, failed caulk and flat metal means that water can get in the joint, go behind the metal and behind the roof membrane base flashing. This joint should at least be recaulked. In future reroofing project, cutting the joint deeper and using proper reglet flashing should be considered.

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Water pocket behind wall flashing



At one area along the wall flashing a water pocket has formed. This may be due to the above mentioned issues at the reglet joint. The blister should be cut and patched.

Flashing detail at unit and duct



When this roof was done, one of the ducts must have been very low to the roof. The duct was “built into the roof”. The end of the unit and curb were also “built in”. When we inspected the flashing on the unit curb we were able to push water out of the rubber. This detail needs a closer inspection and to patch the infiltration point if possible.

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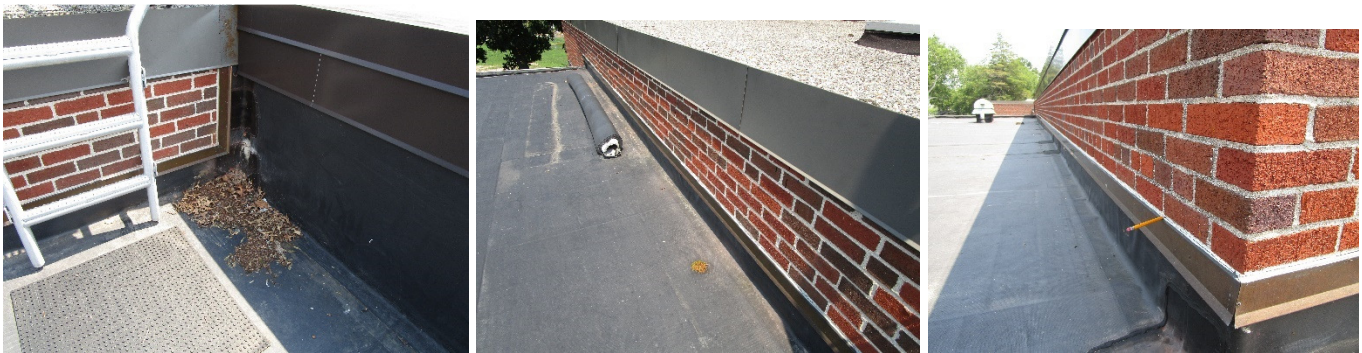
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Roofs E & F



Roofs E & F are adhered roofs similar to D. They are in good condition and need only basic maintenance except for the reglet flashing. The caulk in the reglet joint at these levels is in a similar condition to that of roof D. The joint should be recaulked.

Roof G

Roof G is a small roof below roof F. It is in the same condition as E & F and needs only caulking and minor maintenance work.

Roof H



Roof Area H is part of the RPI warrantied system. It is detailed in the same fashion at the perimeter as Area B. It is in good condition; however, maintenance and repairs are needed at a number of conditions.

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Expansion joint



The ends of the expansion joint do not appear to have been finished and are open. These need to be properly flashed and sealed.

Loose and peeling patches



There are many patches on this roof that are peeling or lifting. These all should be cleaned and repatched. In addition at the expansion joint curb with the Built-Up-Roof, EPDM was used for the tie-in. This is not a standard detail and may peel up over time. We recommend applying a Bituminous resin flashing material (compatible with both EPDM and asphaltic membranes) and reinforcing fabric over the tie-in side of the curb.

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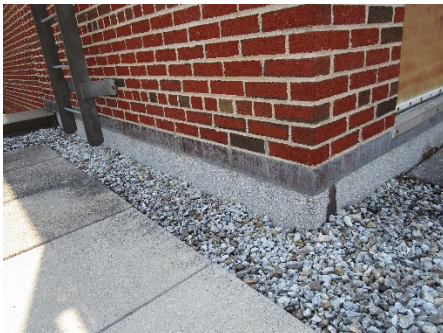
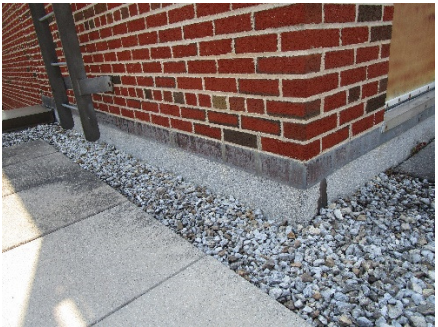
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Roofs I, J and K



Roofs I, J and K are all inverted or "IRMA" built-up roofing systems. The membrane is on the deck, then insulation, filter fabric and ballast are on top of it. This type of system tends to have very long life spans because of the protected and temperature regulated nature of the assembly. Going by time span pictures of the school, it looks like these roofs cover an addition that was installed in the early 2000's. Only the visible portion of the flashings were inspected on these roofs and all look to be in good condition. General maintenance to remove organic growth, clear drains, etc., should be performed. There are also two conditions that need more attention.

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Tie-in with slate roof on roof J



The tie-in to the older existing building with the slate roof is performed using metal flashing over what looks like a flexible membrane. The screws are rusting in the metal and judging by the caulking applied to some of the areas, the joint has leaked in the past. This detail should be closely inspected, recaulked and the joints possibly overlaid with PS EPDM flashing if necessary.

Caulking at window ledge on roof k



It appears that the ledge at the windows above roof K has previously leaked and been caulked. This area needs to be closely inspected and properly recaulked.

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Roofs L & M



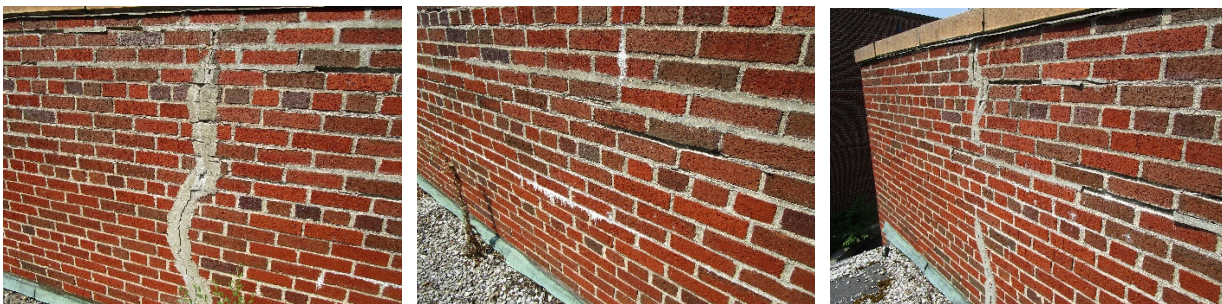
Roofs L & M are old “IRMA” roofs. As such, only visible flashing was looked at. Organic growth needs to be removed from these roofs. In addition, drains need to be cleared and ballast redistributed in some areas.

Caulking and flashing repairs



All corners should be inspected and resealed and caulking should be checked at all window flashing.

Possible major wall problem between roofs L & M



The masonry wall between roofs L & M is in extremely poor shape. There are vertical cracks in the wall missing mortar between bricks, missing mortar under the coping stones and some possible bowing. This wall should be looked at by the school’s architect or engineer and the appropriate repairs made. The wall condition is also affecting the coping stones at the top of the wall.

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The coping stones are no longer lying flat and even. This may be due to the problems with the brick wall, eroded mortar or both. This needs to be looked at along with the wall.

Roof Areas N and O



Roof areas N and O lie above the slate roof. They are separated by a small step in the roof. Roof N was shown as all wet on the infra-red report; area O was dry. Because the entire area of N was shown as wet, we recommend that this roof be removed and replaced. We can provide pricing for this replacement upon request. Roof N needs only basic maintenance.

Roof P



Roof P is above the slate roof as well. It is a narrow IRMA style built-up-roof. It looks to have become a collection area for broken/changed slate and some other debris. It needs to be cleaned and have general maintenance.

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In conclusion, the roofs at Stark School are generally in good condition but in need of maintenance and minor repairs. Some construction items should be monitored, and others possibly revised during future projects. Only one area of roof needs to be replaced. Replacing roof N is made difficult by its position and lack of access. The slate roof is not being addressed in this report. A possibly severe problem may exist with some of the masonry work and should be looked at by a design professional.

Please let me know if you have any questions, or need replacement pricing for areas H and I.

Respectfully,



David Lederman