

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

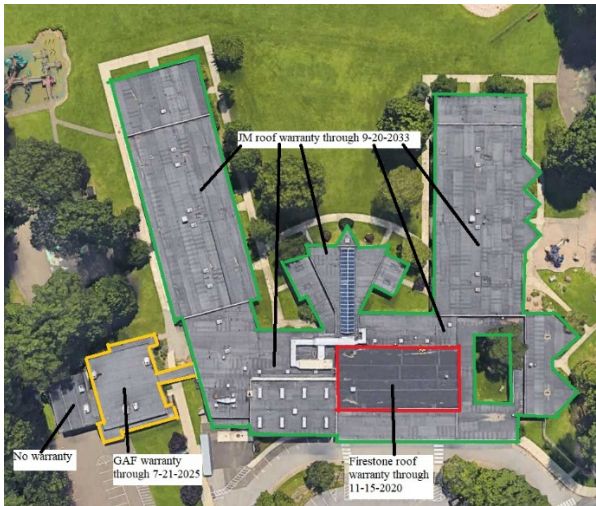
TO: Viking Construction, Inc.
1387 Seaview Avenue
Bridgeport, CT 06607
ATTN: JoAnn Michaels

DATE: October 28, 2019

RE: Roof report and repair quotation
Newfield Elementary School
345 Pepper Ridge Road
Stamford, CT 06905

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, if necessary, 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.



Roofs labeled with warranties if present



Areas of moisture shown on Roof Scan

The roofs on Newfield school are in very good shape. The infrared scan revealed 11 small wet areas on the roof. These appear to have mainly been caused by holes in the roof membrane. These holes have been patched. Most of the school is covered by John Mansville Adhered EPDM roofing systems installed in 2013 (outlined in green). These roofs have active 20-year roof warranties that will expire in September of 2033. JM roofs cover most of the main school. Only 3 small wet areas were found on the JM roofs. The second highest roof level has an Adhered Firestone EPDM roof (outlined in red). It was installed in 2000 and its warranty will expire November of 2020. This roof level contains most of the marked wet areas. The third area with a warranty covers part of the portable classrooms (outlined in yellow). The warranty on this section will expire July of 2025. This area has one wet area. During our inspection, we not only saw the marked areas but also found a number of maintenance items, and items in need of repair that should be addressed in order to correct issues that may cause leaks in the future as well as keep the roofing systems and associated flashing details performing up to their maximum potential well past the warranty periods.

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Wet areas found in the moisture scan

Wet area #1



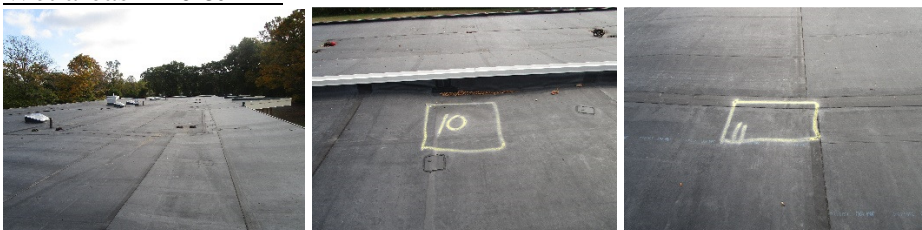
Wet area #1 is found next to a unit over the GAF warranted section of the modular classrooms. There is a low spot within the marked area, perhaps because the wet insulation has crushed. We believe there is/was a hole in this area. The marked area should be removed and replaced, but instead of using flat insulation, since the area holds water, we would install a tapered insulation cricket at the side of the unit to reduce the ponding and keep water away from it. We would also inspect/repair the flashing at the unit to make sure that the leak source did not originate there.

Wet area #2



Wet area #2 is found on the left side classroom wing. It lies on a lap and very close to a "T-patch" that covers the intersection of two laps. We suspect the water is getting in through either a fishmouth in the lap or an open gap where the T-patch goes over the lap. This area should be cut out and the laps/T-patches checked and repaired.

Wet areas # 10 & #11



Right side classroom wing containing areas #10 & # 11

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Wet areas # 10 and #11 are found near patches and a lap. When the wet areas are replaced the surrounding laps, patches and flashing details will be checked and any fishmouth, additional holes, loose patches, etc., will be repaired.

All of the other wet areas are found on the upper Firestone roof.

Wet area #3, #4 and #5



Wet areas 3 and 5 are found around patches. These were most likely caused by holes. Areas 4 has no patches and is not by any laps. There is a drain nearby. This area needs further investigation.

Wet area #6



Wet area #6 radiates out from the ventilator curb. We suspect water is getting into the roofing system either from the metal joints of the vent or the base flashing of the curb. In addition to replacing the wet area, the vent joints should be sealed and the curb flashing repaired.

Wet area # 7 and #8



Areas 7 and 8 lie on both ends of an area that holds water.

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Wet areas 7 and 8 are found on both ends of and area of ponded water. There are a number of laps that run into and near this area. The laps are rippling and may have issues that are causing the water infiltration.

Wet area #9



Wet area #9 appears to come from a hole that has been patched.

General recommended roof repairs and maintenance

Though the roof is performing well and the amount of noted wet areas is relatively small, the roof does need maintenance. There are items that need to be repaired in order to prevent some conditions from get worse and turning into leaks and problems.

Overlaying perimeter of large patch



The area shown above containing the drains, vent and curb appears to be a large patch or was done with a separate sheet of membrane. This membrane goes over many other laps. Even though there are T-patches at these intersections, we recommend overlaying the perimeter of the sheet with new flashing membrane to ensure the laps and intersections remain tight.

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Cleaning debris from drains



Cleaning debris from drains and various natural collection points on the roof should be part of regular maintenance.

Open Flashing



Open flashings were found at pipe penetrations, curb corners, skylight curbs, etc. All curbs and penetrations must be checked, and any open flashings repaired before water can enter the system and cause leaks.

Open penetration pockets



All penetration pockets must be checked and any areas with voids or lifting flashing repaired. In one case, the insulation around the pocket is crushed. It appears that serviceman step over the conduit at the same spot and this repeated action has damaged the insulation. Rather than just repair the penetration pocket the surrounding area should be cut out, fresh insulation with a high-density cover board installed, the roof repaired, and a new penetration pocket installed. The HD coverboard will strengthen the area and prevent the crushing problem from happening again.

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Deteriorating vent cover



The cover on this vent has some splits, dents and is rusting. A new cover should be fabricated and installed before this on deteriorates further and leaks occur.

Area of insulation debonding from the deck on the upper Firestone roof



It appears that the insulation along the two long sides of the upper Firestone roof are coming away from the deck. We would recommend installing two rows of fastener and plates on each side to secure the insulation and roof at these perimeter edges. EPDM Coverstrip would be installed over the rows of screws and plates. It is important to secure this area before further lifting or wind damage can occur.

Fishmouths and open joints at perimeter edging



In some areas around the roof perimeter we found some fishmouths or open joints in the perimeter metal edge flashing. All the roofs perimeter should be walked and any open joints or fishmouths repaired.

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Installing additional counterflashing at walls with EPDM flashing between roof levels



There are a number of areas where EPDM flashing was installed over walls between roof levels. This occurs between the main roof and the Firestone roof, the main roof and the “triangle” sections over the media center and in sections between the levels on the media center. In some instances, the termination bar at the top of the membrane is not keeping constant compression and the membrane is sagging or loose. Over time the top edge of the membrane could become susceptible to water infiltration. We suggest installing an additional piece of counterflashing that is slid under the upper roofs metal fascia. The additional metal flashing would cover the top of the membrane and termination bar in order to eliminate this future potential problem.

Opening of expansion joint flashing at media center roofs



The membrane stripping where the bellows of the expansion joint meets the roof curb is opening. The entire length of the base of the expansion joint needs to be resealed.

Another interesting condition here is that part of the wall between the expansion joint and the higher roof is covered in EPDM membrane (see picture in the above section), but not the entire wall. We can provide a quotation to cover the balance of this wall with membrane if it is thought that the panels may eventually leak, and it is desirable to complete the membrane work on this section of wall.

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Caulking at counterflashing



A reglet counterflashing is installed at the wall above the small front canopy and continues on the section of wall on going on above the main roof. The caulking is wearing out and a new caulk bead should be installed. In addition, it appears that people get on the main roof by putting a ladder to the canopy and then use an old piece of wooden ladder to get from there to the main roof. The ladder left between levels is not a safe means of access and it should be removed and or replaced with a secured ladder.

Minor ponding behind another unit on the GAF warranted modular classroom roof



There is minor ponding behind this unit. The installation of a small cricket alongside the unit can help reduce this condition.

Lifting of wood blocking at some edging of the GAF warranted modular classroom roof



Some of the wood blocking under the edging is lifting. This should be refastened, and the fasteners overlaid with new membrane.

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Suggested work on the non-warranted section (not included in proposal)

Perimeter edge detail of the modular classrooms



The edge detail at the modular classrooms is questionable. The membrane is brought down over the edge and then a wooden fascia board is fastened over the turned down membrane. A gutter is installed directly below the wood. The wood is rotting and coming off in many places. This removes the securement for the membrane and allows water to run behind the gutter down the face of the classroom. The gutters are also clogged with leaves.

Overlaying lap bucking water



The membrane from the lower roof runs up and on to the edge of the upper area. Water runs over the edge of the higher roof onto the lower one. This puts a lot of wear on the lap of the membrane. Overlaying the lap with new membrane would help protect edge of the lap and extend the life of this detail.

On most schools we have been asked not to include work on the modular classrooms in our suggested repair and maintenance pricing and we are not including repair work to these two items, however, we can price this work if requested. The only work we have included on the modular classrooms are on the areas with the active roof warranty.

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Summary

In summation the roofing systems at Newfield School are in very good condition and only a small amount of wet areas were found on the infra-red scan. That being said, there are a number of conditions that, left repaired will most definitely lead to leaks, water infiltration and future problems. If these items are corrected and the roof properly maintained the systems should last for many years to come.

Please let us know if you have any questions or need additional pricing on the other items mentioned.

Respectfully,



David Lederman