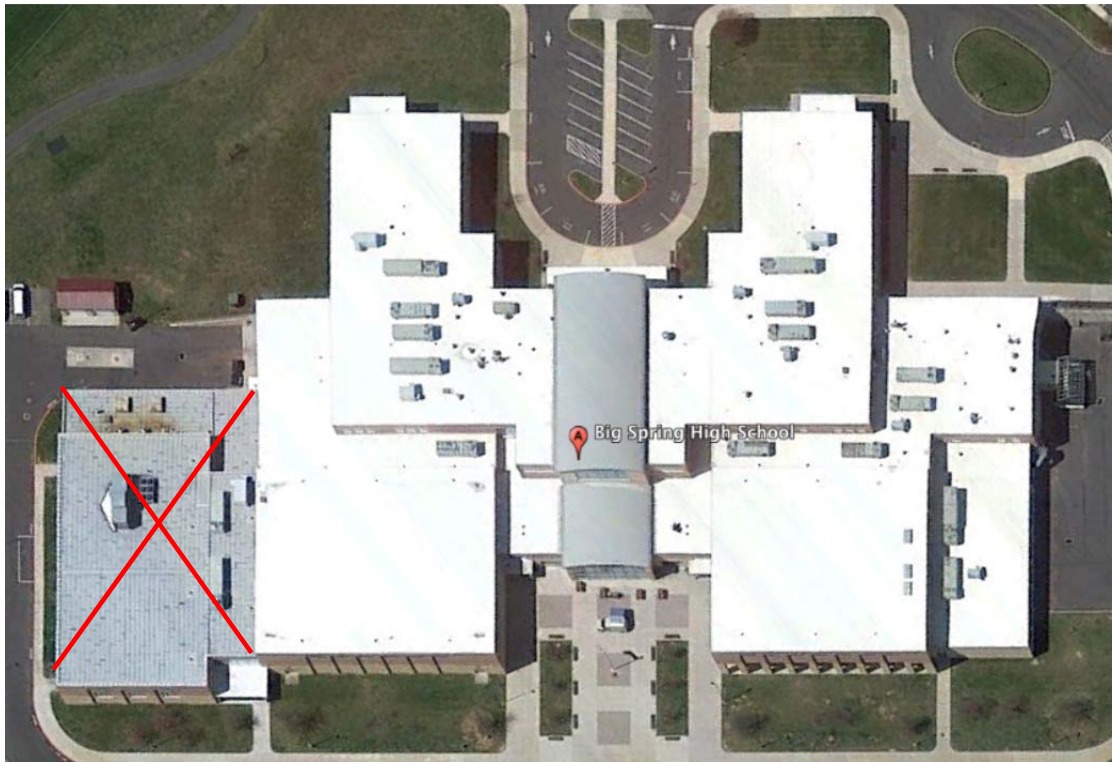
High School – Roof Repair & Restoration

The surface of the roof (areas 4-23 is a single ply membrane. This calls for the cleaning, power washing and application of a urethane coating of 103,080 sq ft. Not included is the previously replaced section over the pool & utility areas. It also includes selected repairs across the roof areas being coated. Once finished, the roof will be under a 10-year warranty and can (likely) be coated in 10-years for another warranty extension.

There was some question about the requirement for a urethane coating versus silicone or acrylic.

The existing TPO membrane is not a good base for an acrylic coating since it does not have extended weathering performance and the silicone coating would create a slippery surface and a fall hazard.



The school district's preference for a polyurethane coating product is based upon the performance of these products. I have attached a comparison chart for your review and the GACOFlex S20 Series Silicone product does not provide the same performance specifically for Tensile Strength & Elongation (ASTM D 412) or Tear Resistance (ASTM D 624). See chart at right.

		Gaco Flex	Garland
Physical Properties	**Test Method**	**S20 Series**	**White Knight Plus**
Color		White	White
Tensile Strength	ASTM D 412	550 +/- 10 psi	2100 psi
Elongation	ASTM D 412	150% +/- 10	320%
Tear Strength ** Note: Gaco Flex S20 Series Product Test Method is listed as ASTMD624 Die C**	ASTM D 624	**21 pli (pounds per lineal inch)**	160 lbs / in
Flash Point	ASTM D 93	N/A	110° F
Flash Point	ASTM D 3278	178 °F	N/A
Reflectance	ASTM C 1549	.88	.87
Emmittance	ASTM C 1371	.87	.90
VOC		35 g/l	225 g/l
SRI		None Provided	111

Mt. Rock Elementary – Partial Roof Replacement

Roof Area #	Area (S.F.)
4	27,043
5	8,223
7	738
Total	36,004 S.F.

This specification is for the replacement of areas 4,5 & 7 with a built-up roof system. In the opinion of our consultant, the original roof was designed for a built up system because, Roof Area 4, it is a perfectly flat roof with drains at the perimeter. This is both a safety hazard and problematic for leaks. The current membrane system is not the best choice since tapered insulation cannot be used due to the excessive cost of raising the perimeter through-wall counterflashings and the perimeter walls at the metal fascia locations, which means the standing water on Roof Area 4 will freeze in the winter which will create a safety hazard. Roof Areas 5 and 7 use the same system, but will have slope, so one (1) warranty will be issued on the project.

<u>Roof Areas 4, 5 & 7:</u>

- Roofs will be removed to the metal decks.
- Capped curbs will be removed on Roof Area 4.
- Vapor barriers will be installed on the metal deck on Roof Areas 4 and 5. Currently there is not one in place. This will stop the vapor drive within the building from entering the roof system.
- 5/8 inch Fire Rated cover board will be installed over the vapor barrier. Currently there is not fire barrier within the existing assembly. This qualifies for a Class A interior fire rating.
- 3.5 inches of polyisocyanurate insulation will be installed on Roof Areas 4 and 5. Roof Area 7 will receive tapered insulation. Polyisocyanurate insulation will be overlaid with a ¼ inch layer of Securock insulation.
- Roofing system – Two plies of modified membrane will be installed in cold adhesive with a flood and gravel surface. Since the deck is dead level flat and tapered insulation cannot be used economically since the perimeter counterflashings will have to be raised on the masonry walls.
- Perimeter and projection flashings will be a two-ply construction.
- Edge metal will have a 215 MPH lifetime wind warranty.
- Interior drains will be replaced.
- Overflow scuppers will be installed along the north wall of Roof Area 4. Missing overflow scuppers of drains is a Code violation.
- The roof systems will have a 40-year warranty.

<u>Roof Area 2</u> is not to be replaced. As an alternate to the Base Bid we have asked for a price to coat the black EPDM covered ductwork with a white coating as a more thermally efficient surface.