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# DAVIDSON & ASSOCIATES

CONSTRUCTION ANALYSTS, INC.

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## Shenandoah University – Byrd School of Business **Forensic Investigation & Analysis**



Project consists of a 61,000 sf three story, institutional building completed in 2008. The Client identified deficiencies that resulted in uncomfortable and uneven temperatures at the floors above the open garage and ongoing exterior soffit moisture damage since project completion. D&A was retained approximately two years post occupancy after efforts by the architect and contractor failed to identify and correct deficiencies. Two stories of administrative and educational spaces are located above a partially below grade single story open parking garage. The steel frame and concrete structure is primarily clad with brick and ground face masonry veneers supported on cold formed metal framing. Fenestration consists of aluminum frame curtain wall, storefront and window systems. Roofing includes a standing seam metal mansard with an EPDM membrane at the flat portions. The project is located in Winchester, Virginia.

**Challenge:** Review the design and construction phase documents including value engineering decisions, product substitutions, etc. and conduct field observations with limited invasive testing to identify the cause(s) of occupant discomfort and ongoing moisture damage.

**Value Added:** D&A's document review, field observations and limited invasive testing, including borescopic evaluation of concealed conditions identified inadequate/missing insulation at the underside of the exposed garage floor deck and concealed perimeter soffit areas. Our recommended analysis for a mechanical evaluation by an outside consultant identified potential short-circuiting of the heating supply/return design. Inadequate drainage, weather barrier and flashing design and construction issues resulted in entrapped moisture above the soffits.

**Service performed:** Forensic Investigation / Analysis, Construction Document Evaluation of New Construction

**Client:** Shenandoah University  
**Duration:** 2010 - 2012

**Architect:** PSA-Dewberry, Inc.  
**GC:** Howard Shockey & Sons