

28 March 2014

SIMPSON GUMPERTZ & HEGER

Engineering of Structures
and Building Enclosures

Mr. Ernest E. Sandland
Facilities Director
Whitman-Hanson Regional School District
600 Franklin Street
Whitman, MA 02382

Re: Roofing and Masonry Investigation, Whitman Middle School, 100 Corthell Ave,
Whitman, MA

Dear Mr. Sandland:

As you requested, this proposal presents our scope of services and fees for investigating the condition of, and leakage through, the low-sloped roofs and east-facing brick masonry cafeteria wall at the Whitman Middle School.

1. BACKGROUND

We visited the Whitman Middle School on 18 March 2014 to meet with you and Mr. Robert Curran to observe the roof and discuss ongoing roofing and leakage problems in preparation for this proposal. Based on our discussions and observations, we understand the following:

- The low-sloped roof covering classrooms, gymnasias, cafeteria, and other areas is a mechanically fastened PVC membrane manufactured by Johns-Manville. The PVC membrane is applied over two older roofs: an original built-up roof and an EPDM roof. We understand that a roofer found some open seams in the roofing membrane during a recent survey, but we saw no open seams during our brief time on the roof.
- A recent infrared imaging survey of the gymnasium roof, performed by IR Analyzers, identified about 1/8 of the roof area as containing moisture. These areas, occurring near perimeters and corners, are marked.
- In November 2013, FLI Environmental (FLI) sampled indoor air for evidence of mold and found elevated levels of some molds from samples obtained in the gymnasium.
- In the gymnasium, occupants report a moldy, musty smell, which was also documented by FLI. We noted this smell during our visit. Mold has been cleaned from the underside of the gym's steel roof deck twice in the recent past, with biocide applied to the underside of the deck, and duct work has been cleaned.
- There are no exhaust fans. The building has a passive exhaust system that expels interior air under positive pressurization created by the supply air. Fresh air is introduced by supply fans; air is also recirculated.
- Water leaks onto the corridor ceiling tiles beneath the east-facing brick wall of the cafeteria. Water-testing of the masonry by others replicated leakage, but no destructive openings were performed to observe entrance paths.

We understand that the School District intends to improve indoor air quality, replace damaged roofing, and eliminate roof leaks. You requested this proposal for our services to evaluate and sample the existing roofs and to investigate the masonry wall above the cafeteria and corridor, as outlined below.

Simpson Gumpertz & Heger Inc. (SGH) investigated problems with the roofing and brick masonry at this building in 1982. Files remaining in our possession include design specifications for new roofing and recommendations for repair of the brick masonry, and correspondence with school personnel through 1984. As a matter of course for the proposed work, we will review our files in further detail to help understand past repairs and conditions.

2. BASIC SCOPE OF SERVICES

Our work includes our field investigation, report of findings and recommendations, and attendance at a meeting with the District to discuss our findings and recommendations.

2.1 Field Investigation

- **Review Background Documents:** We will review roof background and as-built documents that you provide, as well as our files from our 1982-1984 involvement, to help us understand the existing roof and associated wall construction, including original construction drawings, previous roof repair documents, leakage reports, and previous roof condition reports by others.
- **Visual Roof Evaluation:** We will visually evaluate the condition of the existing exposed roofing membrane, including seams, flashings, drains, equipment curbs, and penetrations. We will document unsatisfactory conditions, which may include open laps, deterioration, punctures from abuse, apparent leakage paths, and ponding.
- **Interior Leakage Survey:** We will interview building personnel about the history of leakage and inspect accessible areas of the interior of the building to observe areas of reported leakage and monitor our water tests of the cafeteria masonry wall area.
- **Infrared (IR) Survey:** We will perform an infrared survey of the entire roof following procedures of ASTM C1153 – Standard Practice for Location of Wet Insulation in Roofing Systems Using Infrared Imaging. We will mark thermal anomalies that may indicate the presence of moisture beneath the roof membrane and use this information to guide our exploratory openings (thermal anomalies must be destructively probed to confirm the presence of wet materials). The infrared survey must be performed after sunset and when the weather conditions allow for effective results so we will need safe nighttime access to the roof.
- **Masonry and Exploratory Openings:** We will spend up to one day water testing the cafeteria masonry wall to isolate leakage and observing openings in the brick masonry to isolate leakage paths.

This work will require the assistance of a mason, which you should retain directly. We will coordinate with and direct the work of the mason. The mason will need to remove and reinstall brick and repair any flashings that we may sample in our openings.

- **Exploratory Roof Openings:** We anticipate removing up to six samples from the gymnasium roof and up to twelve samples from other roofs to determine the roof composition, presence of moisture, and observe the condition of roofing materials and deck. Samples will measure about 2 ft square.

Sampling will require the assistance of a J-M certified roofing contractor, which you should retain directly. We will coordinate with and direct the roofer to remove samples of roofing and insulation to expose the steel deck roof systems and patch openings with similar materials, as needed to maintain any existing warranties and keep the patch area watertight.

- **Laboratory Testing and Analysis of Roofing Samples:** We will analyze roofing samples in our laboratory to determine moisture content and will conduct a visual evaluation of material properties and condition. We will select representative samples of PVC membrane to compare material properties such as low-temperature flexibility and elongation with industry standards for new PVC membrane to help assess remaining serviceability.

2.2 Reporting

Upon concluding our investigation, we will provide the following:

- **Report:** We will write a report summarizing our investigation and our findings, including our observations and recommendations for the roof repairs and maintenance. Our report will include:
 - Assessment of the present condition of the roof, its components and means of attachment, and its remaining expected service life.
 - Options for repair or replacement as well as basic cost estimates for each option, with advantages and disadvantages of each option as well as the ability of repairs to extend the service life of the roof.
 - Roof plan identifying deficiencies; condition of roof flashings, drains, etc.; and locations of wet materials based on our infrared survey (where applicable) and confirmed by sample openings. We will issue our report in electronic format and provide a bound hard copy of the report.
- **Meeting:** Attendance at a meeting with the District to discuss our findings and recommendations, as contained in our report.

3. ADDITIONAL SERVICES

We have not included the following tasks in our current work scope, as their need has not currently been established. We would be happy to provide a scope and fee for these tasks upon your request, or as our findings may dictate:

- **Review Fresh Air Ventilation/Mechanical System:** We see many buildings where the mechanical system is a primary or contributing factor to indoor air quality problems.

Based on our findings with the roof, we may recommend a thorough evaluation of the mechanical system. This can be performed by our in-house mechanical engineering staff, or we can coordinate with an outside consultant that you retain.

- **Structural Review** of the roof decks and framing. This analysis will probably be required to assess snow-loading and wind-uplift capacity of the existing structure with respect to current building codes.
- **Repair Design:** Develop plans, details, and specifications for repair or replacement of roofs and leaking masonry wall details, and/or mechanical system repairs, as may be warranted by our findings.
- **Construction Engineering Services** including coordinating and reviewing bidders and bids, reviewing of submittals and shop drawings, attending project meetings, and visiting the site periodically to observe whether the work is being installed in accordance with the contract documents.

4. HAZARDOUS MATERIALS

Roofing materials may contain biological contamination or asbestos, whose presence should be determined prior to replacing the roof, as required to protect occupants and materials scheduled to remain. We recommend that you retain a certified/industrial hygienist/IAQ consultant to perform this work in conjunction with our sampling. We can work with your current consultant or recommend alternate consultants for your consideration. We will coordinate our work to facilitate work of the consultant, but Simpson Gumpertz & Heger Inc. (SGH) is not qualified to perform these services.

5. FEES, TERMS AND CONDITIONS

Per your request, our Basic Scope of Services will be performed on a Fixed Fee Basis, as outlined below. The Fixed Fee includes reimbursable, equipment, and laboratory expenses, but does not include contractor, IAQ consultants, access, patching materials, or school personnel costs. To assist with your budgeting or possible phasing of our work, we have provided in Table 1 below line-item pricing for individual tasks that may be performed separately.

TABLE 1 – FEES BY TASK

Review background documents and files (District and SGH from 1982)	\$ 1,600
Visual and IR Survey of All Low-Sloped Roofs; Gym Roof Sample Openings (two days on site plus nighttime IR survey)	\$ 7,900
Sample openings at other roof areas (one day on site)	\$ 3,200
Laboratory Review and Moisture Analysis of Samples (sixteen samples)	\$ 3,700
Masonry Investigation, Cafeteria Wall above Roof (one day on site)	\$ 3,900
Report	\$ 6,200
Meeting	\$ 1,500
Total Fee	\$28,000

For work outside the Basic Scope of Services, we can provide additional Fixed-Fee pricing or compute fees on an hourly basis as shown on the attached Fee Schedule and Payment Terms.

Travel time is charged at full rates from 8:00 a.m. to 6:00 p.m. and at half rates during other periods. SGH will bill direct expenses at actual cost plus 10%. Direct expenses are out-of-pocket expenses and include, but are not limited to, travel, outside services, copying, and charges for the use of SGH field and laboratory equipment.

This proposal is valid for sixty days. Our proposed agreement consists of this proposal and the enclosed Contract Provisions and Fee Schedule and Payment Terms. If acceptable, please sign and return one copy of this letter, with a retainer of \$2,000. We will credit this amount to your account, to be applied against our final billing, and will return any unexpended balance to you at that time

We enclose resumes of Peter Nelson, P.E., Eric Olson, P.E., and Matt Fuhrmeister, P.E., who are available to assist you on this project. Mr. Nelson was involved with the work in 1982. We also enclose materials describing our qualifications and experience relevant to this assignment.

Sincerely yours,
SIMPSON GUMPERTZ & HEGER INC.



Peter E. Nelson, P.E.
Senior Principal
MA License No. 32413



Eric K. Olson, P.E.
Senior Project Manager
MA License No. 41682

Accepted: WHITMAN-HANSON REGIONAL
SCHOOL DISTRICT

Signature: _____

Printed Name: _____

Title: _____

Date: _____

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Encls.



December 29, 2015

VIA EMAIL: Ernest.Sandland@whrsd.k12.ma.us

Mr. Ernest Sandland
Facilities Department
Whitman Hanson Regional School District
600 Franklin Street
Whitman, MA 02382

AEC Project No. 421902

**Subject: AHERA 3-Year Re-inspection Report
Whitman Middle School
100 Corthell Avenue
Whitman, Massachusetts**

Dear Mr. Sandland:

Please find enclosed the three-year re inspection report for the Whitman Middle School. If you require any further assistance please feel free to contact me at (781) 337-0016.

Thank you for allowing American Environmental Consulting, Inc (AEC) to assist you with this project.

Sincerely,
American Environmental Consulting, Inc

Gregory Hatch
Partner
MA Certified Asbestos Inspector (AI061535)
MA Certified Management Planner (AP061534)

The asbestos, lead, mold and hazardous material professionals

814 Broad St. ■ Weymouth, MA 02189 ■ 781-337-0016 ■ Fax: 781-337-0986



**AHERA
3-YEAR REINSPECTION REPORT
WHITMAN MIDDLE SCHOOL**

SUBMITTED TO:

**WHITMAN HANSON REGIONAL SCHOOL DISTRICT
600 Franklin Street
Whitman, MA 02382**

SUBMITTED BY:

**AMERICAN ENVIRONMENTAL CONSULTANTS, INC.
814 Broad Street
Weymouth, Massachusetts 02189**

PROJECT NO. 421902

December 29, 2015