Greenburgh Mansion
Structural Assessment Report

Greenburgh ECP Building and RJ Bailey
Structural Overview Report

September 16, 2019

Table of Contents

CSARCH

Memo

TO:	Dr. Tahira DuPree Chase
FROM:	Tina Mesiti-Ceas, CSArch
DATE:	September 16, 2019
PROJECT:	GCSD Summary of Structural Assessments for the Mansion, ECP and RJ Bailey
CSArch Project No.	166-1906

GCSD Mansion:

As the District understands, CSArch was engaged to perform an initial analysis of the Mansion Roof in preparation for the roof repair/replacement project. Upon visual inspection of the roof, other building areas of concern were brought to our attention, including but not limited to deterioration of the parapet walls, masonry walls and ceiling areas including the Pre-K classrooms.

No existing and/or original construction documents or drawings of the Mansion were available. Based on the age of the building, visible signs of deterioration on the exterior, water infiltration and instances of damaged plaster ceiling failure, CSArch recommended engaging a structural engineer to assess the scope of structural damage. The District agreed to proceed with a two-step structural assessment by DiSalvo Engineers.

Step 1: Bruce from DiSalvo Engineers and Karen from CSArch visited the Mansion on 8/27 and identified 4 areas of concern:

- the plaster ceiling above the dropped ceiling in the ECP rooms on the lower level
- the stairs leading out from the Ground floor ECP classroom
- the brick retaining wall adjacent to the ECP playground
- the parapet adjacent to the ECP playground

We deemed these specific spaces hazardous to be occupied by students in the memo we issued on 8/28.

The 8/28 memo recommended further investigation of the plaster ceiling which DiSalvo performed on 9/3. This investigation led DiSalvo to recommend that, in the lower level ECP classrooms, ceiling tiles be temporarily removed in order to allow the full removal of the deteriorated plaster ceiling above. The ceiling tiles could then be re-installed. Repair procedures for the stairs, brick retaining wall and parapet listed above are per the Memo issued on 8/28.

Based on the findings, we recommended that the lower level ECP Classrooms and the ECP playground areas adjacent to hazardous masonry conditions remain unoccupied until repairs were completed.

Based on our team's initial visual inspection noting deterioration throughout the building exterior and on reported instances of sudden plaster ceiling collapse in spaces beyond the scope of Step 1 investigation, we recommended GCSD proceed with Step 2 - a comprehensive structural assessment of the *full* Mansion.

The comprehensive structural evaluation was necessary to determine whether conditions such as visible changes in floor elevation were symptomatic of widespread structural issues or whether they were in fact isolated conditions. This assessment required selective demolition (or probes) to properly evaluate the cause of visibly deteriorated conditions.

445 HAMILTON AVENUE, SUITE 1200, WHITE PLAINS, NEW YORK 10601 // 914.997.2724 CSARCHPC.COM

Based on the inconclusive results from Step 1, as to whether structural issues were isolated conditions or more widespread, and previous ceiling failure and fallings, CSArch could not conclusively deem the facility safe for occupants. The District took a precautionary approach to ensure occupant safety and temporarily evacuated occupants in certain areas of the Mansion, at least until Step 2 Investigations were completed and the results were known. GCSD's action allowed our team to effectively conduct Step 2 of the structural investigation.

Step 2: The comprehensive structural investigation required probes (performed by GCSD facilities staff) in four areas of the Mansion. DiSalvo and CSArch reviewed the exposed areas (probes) on 9/10. The probes were intentionally located to understand the underlying cause of visible deterioration of the building.

- Though projecting wood floor framing members are visibly and severely deteriorated on the outside of the building, one of the probes showed that the floor structure is generally in good condition.
- Based on a visual inspection of a probe, the cause of changes in the floor levels at two locations on the ground floor, appear to be a result of partially failed foundation level structural members due to damage from water infiltration [photos 1-2.]
- A 2nd floor area of differential floor level was found to be due to a failure of the original floor framing details, none of which was visible until probing. This enclosed cantilevered space is visibly sagging on the outside as well [photo 3.]
- A probe in the ceiling of the garage around an area of damaged plaster revealed deterioration of the porch floor structure above due to a roof leak. [photos 4-6.]

DiSalvo has issued a report on the review of these probes and we are putting together a suggested repair procedure, to be associated with estimate pricing for the four areas of structural damage and for the large retaining wall collapse at Dr. Chase's office.

This structural assessment allowed our team to confirm that the deteriorated areas reviewed appear to be isolated and caused by unique structural conditions, and are not symptomatic of more widespread issues. We recommend that the areas described above remain unoccupied until repairs are completed. Now that the investigation is complete, safety concerns appear to be limited to the 4 areas of structural damage and the area of the retaining wall collapse.

Additionally, given the age of the building finishes and the number of reported staff complaints related to interior environmental conditions such as air quality, dampness and musty smell, GCSD requested that our team perform an interior environmental assessment. This investigation was performed by Adelaide Environmental Engineers on 9/6 and their report was issued on 9/11.

The environmental conditions report, issued on 9/11, identified area of ACM in the Basement ceiling, the presence of lead paint in a number of rooms on all floors of the Mansion and confirmed that at the time of testing no mold was present.

Photo 1

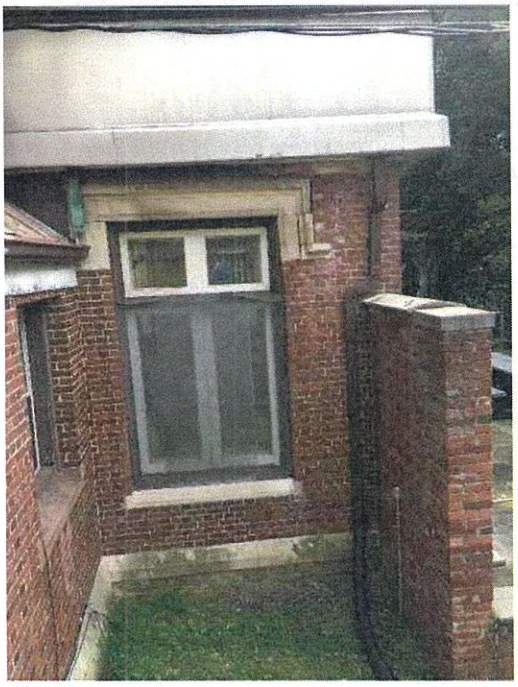


Photo 2

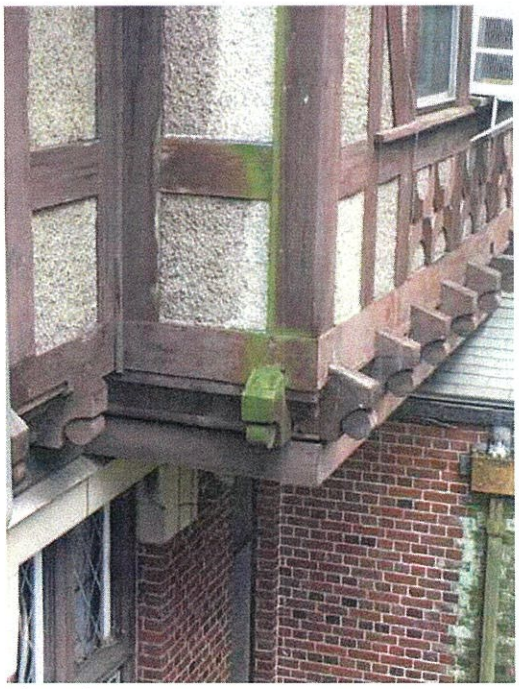


Photo 3

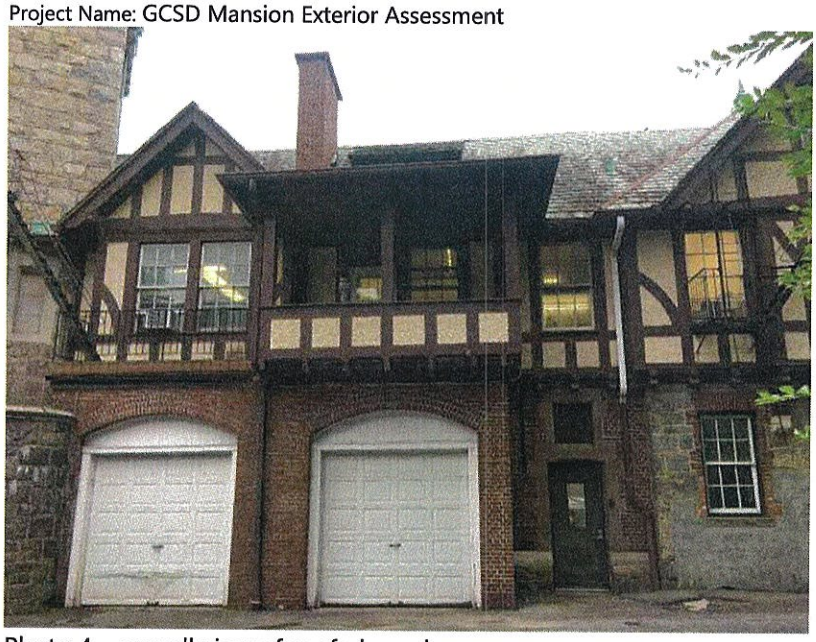


Photo 4 – overall view of roofed porch

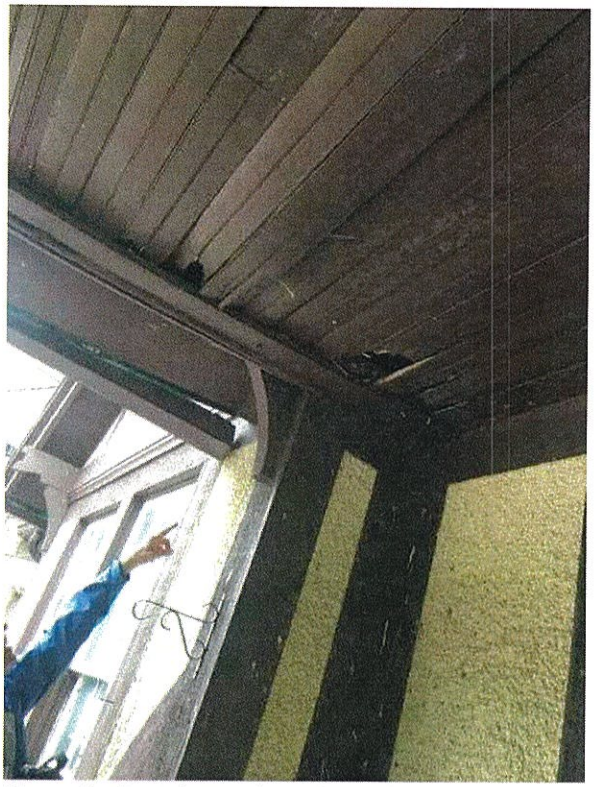


Photo 5 – Deteriorated porch roof

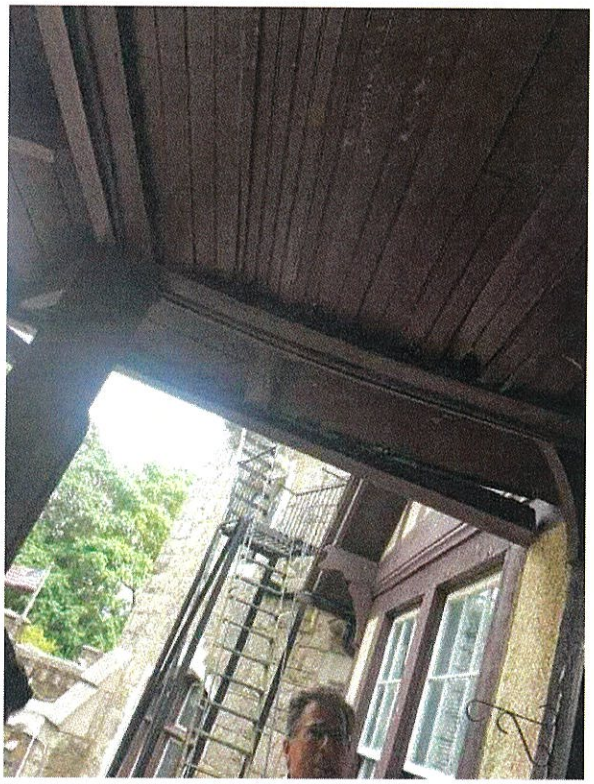


Photo 6 – Deteriorated porch roof

Memo

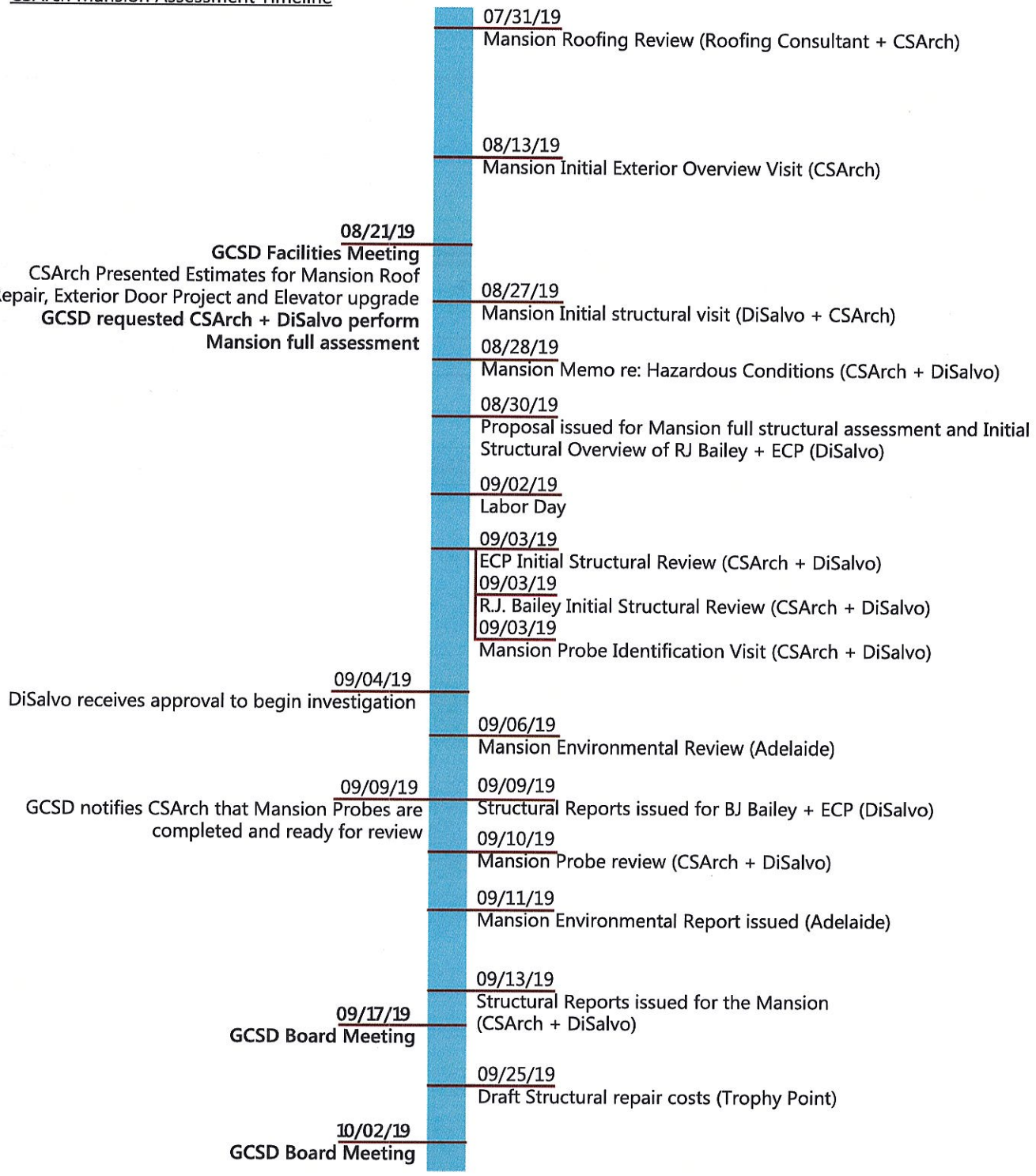
TO:	Dr. Tahira DuPree Chase
FROM:	Tina Mesiti-Ceas, CSArch
DATE:	September 16, 2019
PROJECT:	GCSD Summary of Structural Assessments for the Mansion, ECP and RJ Bailey
CSArch Project No.	166-1906

ECP Building and RJ Bailey:

Following concerns with plaster ceiling collapses in the Mansion ECP Classrooms raised in the 8/28 Memo, the District requested that CSArch and DiSalvo Engineers perform an initial structural overview to confirm whether areas of similar concern existed at the ECP Building and RJ Bailey.

On 9/4/19 CSArch and DiSalvo walked through the ECP Building and RJ Bailey accompanied by Michal Falcone (GCSD). The purpose of this visit was to review areas identified by GCSD Facilities as having experienced water infiltration recently and to understand whether those leaks were undermining the building's structural integrity. CSArch and DiSalvo identified areas of building deterioration, as noted in DiSalvo's report and to be reviewed in more detail in CSArch's full facilities assessment report but did not identify major concerns with either building's structural integrity on the same scale as those at the Mansion. Areas of deterioration identified in DiSalvo's report and in CSArch's upcoming BCS Report, require remedial work to prevent future deterioration.

CSArch Mansion Assessment Timeline



CSARCH

Owner: Greenburgh Central School District

Project: Mansion Critical Repair Estimates

Project #: 166-1906

PROJECT DESCRIPTION	CONSTRUCTION COST	PROJECT COST
166-1906: GCSD Mansion/Admin Building Critical Repairs	**$1,756,716.80**	**$2,705,763.20**
Roofing Replacement (sloped)	$293,000.00	$451,289.94
Roofing Replacement (Flat)	$690,900.00	$1,064,150.92
Window Replacement	$336,000.00	$517,520.20
Façade Repair	$436,816.80	$672,802.14
Structural Repairs associated with Structural Assessment Report	Estimate in progress	Expected 9/25

STUCTURAL ENGINEER'S REPORT FOR GCSD MANSION

Lee Farm Corporate Park
83 Wooster Heights Road
Suite 200
Danbury, CT 06810
Tel: (203) 490-4140
www.tdeg.com

The DiSalvo Engineering Group
Structural Engineers

September 13, 2019

Dr. Tahira A. DuPree Chase
Superintendent of Schools
Greenburgh Central School District
Administration Building
475 West Hartsdale Avenue
Hartsdale, NY 10530

Re: Greenburgh CSD Administration Building Evaluation
475 West Hartsdale Avenue
Hartsdale, NY
TDEG Project No. 19187.00

Dear Dr. Chase:

The purpose of this letter is to provide our findings of the review of the condition of the Greenburgh CSD Administration Building at 475 West Hartsdale Ave. in Hartsdale, NY. The review is prompted by evidence of deterioration of the roofing, parapets, exterior masonry walls, and exposed timbers; displaced interior floor framing, and displaced site retaining walls. The purpose of the review was to determine the nature of the conditions noted and identify areas requiring repair.

The Tudor style building is a historic landmark that was originally constructed in the early 1900's as a private residence and subsequently adapted for re-use as administrative offices and classrooms. The exterior masonry walls include mortared stone, brick, and panels of stucco with half-timbers.

We visited the site with Karen Chubak, CSArch, and Michael Falcone, Director of Facilities on August 27, September 3, 4, and 10, 2019. The review consisted of a walk-around survey of the exterior and interior portions of the building to observe and document the general conditions and to review probes made through the existing finishes at selected locations. Our observations, opinions, and recommendations follow. Photographs of the existing conditions are included in the Appendix.

Observations - Exterior

The exterior masonry elements of mortared stone, brick, and stucco panels with half-timbers are in poor to fair condition. The conditions noted are generally the result of moisture intrusion. The portions of the exterior elements that are in poor condition need immediate attention and should be repaired or replaced as soon as possible. The remainder of the exterior elements are in fair condition and require routine maintenance and repair to prevent moisture intrusion and future deterioration. Specific problem areas are noted below:

E1. Portions of the brick parapet along the edge of the flat roof at the south end of the building, above the Pre-K classrooms, are cracked and displaced outward.
E2. The low brick site retaining wall outside the classroom area is shifted and out of plumb.
E3. The site retaining wall near the west side of the building has collapsed and the resulting exposed sloping grade is eroding towards the building.
E4. Portions of the exposed timber elements at the first floor on the west elevation are deteriorated. (The timber elements were viewed from an interior probe at this location and no significant deterioration of the first-floor framing was noted.)

Bruce D. Richardson, P.E.
Kenneth D. Jones, P.E.
Trevor B. Hill, P.E.

Observations – Exterior, cont'd

E5. Portions of the exterior brick and stone work at the first floor on the west elevation, below the open-air porch, are cracked and displaced. (Note: The floor on the interior side of this portion of the wall is displaced. See note I2 below.)

E6. The cantilevered portion of the second floor at the west elevation is significantly displaced. (A corresponding dip in the floor is evident from the interior. See note I3 below).

E7. Portions of the exposed timber framing at the second-floor cantilevered open porch at the north elevation are deteriorated. (Deteriorated second floor framing is evident from below).

E8. The remainder of the exterior masonry exterior masonry elements of mortared stone and brick are in generally fair condition. No significant areas of deterioration were noted. Missing mortar and some cracked bricks were noted throughout.

E9. The remaining exposed exterior timber elements are in generally fair condition. The paint coating is generally deteriorated and missing from some of the timber fascia boards.

Observations - Interior

The interior conditions noted are, in general, typical for a building of this use and vintage. Portions of the building are in poor condition and need immediate attention and should be repaired or replaced as soon as possible. The deteriorated areas are the result of moisture intrusion. Specific problem areas are noted below:

I1. Portions of the original plaster ceiling at the Pre-K classrooms (above the hung ceiling) show evidence of previous moisture intrusion and are deteriorated or missing.

I2. The first floor is significantly displaced in two corners of the office area below the second-floor open porch and in the vicinity of the cracked masonry in note E5 above. A probe through the floor finish revealed evidence of previous water intrusion and deterioration of the floor framing.

I3. The second-floor framing at the displaced cantilevered portion mentioned in note E6 above was viewed at a probe through the second-floor finish. No deterioration or damage was noted but the support for the cantilevered portion was not evident.

I4. The second-floor framing at the cantilevered open porch at the north elevation is deteriorated due to moisture intrusion from above. See note E7 above.

I5. An active roof look is evidenced by stained ceiling tiles above a second-floor office. The roof leak is presumed to be associated with a skylight above this location.

I6. It was reported that portions of the ceiling and wall finishes have been previously replaced due to damage by moisture intrusion.

Opinion

The problem areas indicated in notes E1 through E7 and I1 through I5 are isolated issues due, in general, to moisture intrusion and should be addressed by remedial repair as soon as possible. The portions of the building affected by those conditions should be restricted to access until the specific issue is temporarily remedied or repaired. The remaining conditions indicated in notes E8, E9, and I6 are considered typical for a building of this vintage. Repair work is recommended to prevent water intrusion which can lead to future deterioration.

Opinion, cont'd.
The exterior finishes require routine maintenance at regular intervals and repair of conditions associated with water infiltration. Routine maintenance of exterior finishes includes cleaning and painting of timber elements, maintenance of gutters and downspouts, and replacement of roofing and flashing.

Exposed masonry elements require routine maintenance at regular intervals and repair of conditions associated with water infiltration. Routine maintenance of exterior masonry work includes tuckpointing deteriorated mortar joints, repair or replacement of cracked or spalled masonry units, and the removal and replacement of joint sealant at the interface between the masonry work and the roofing, flashing, windows and door frames. The application of a clear penetrating water repellent sealer on the exposed masonry elements will help to prevent moisture intrusion. This type of routine maintenance is recommended to avoid the potential for structural deterioration as a result of active water infiltration.

The repair of timber framing members and their connections can be done in a variety of ways depending on the specific condition. Timber repairs can include the use of structural epoxy to patch deteriorated areas, structural epoxy and reinforcing dowels to splice and connect timber members, supplemental framing to "sister" the member or reduce the span, and bolted steel plates to strengthen timber connections.

Recommended Repairs
Recommended repair work includes the following, the specific details and specifications for the repair work are beyond the scope of this report. The repair work should include the following:
Exterior:

R1. Repair/replace the cracked and displaced portions of the brick parapet along the edge of the flat roof at the south end of the building, above the Pre-K classrooms.
R2. Repair the shifted low brick site retaining wall outside the classroom area.
R3. Replace the site retaining wall near the west side of the building. Temporary support of retained soil between the building foundation and new wall may be required to prevent undermining the building foundation.
R4. Repair the deteriorated portions of the exposed timber elements at the first floor on the west elevation.
R5. Repair the cracked and displaced portions of the exterior brick work and foundation at the first floor on the west elevation, below the open-air porch. See Repair Item R12 and Additional Investigation Note 1 below.
R6. Temporarily shore the displaced cantilevered portion of the second floor at the west elevation and re-support with new framing. See Additional Investigation Note 2 below.
R7. Repair the deteriorated portions of the exposed timber framing at the second-floor cantilevered open porch at the north elevation.
R8. Repair/restore the exterior masonry as required. Coat the exposed masonry elements with a clear penetrating water repellent sealer.
R9. Repair/restore the remaining exposed exterior timber elements as required and clean and re-coat all the exposed timbers.
R10. Implement a preventative maintenance program to be performed at regular intervals.

Recommended Repairs, cont'd.

Interior:

R11. Remove the original plaster ceiling at the Pre-K classrooms (above the hung ceiling). The long-term exposure to moisture from the previous leaks around the skylight and from the previous indoor pool have affected the integrity of the plaster ceiling.

R12. Repair the displaced first floor framing in the two corners of the office area below the second-floor open porch.

R13. Re-support the second-floor framing at the displaced cantilevered portion.

R14. Replace the second-floor framing at the cantilevered open porch at the north elevation.

R15. Remove and replace the damaged plaster ceiling in the vicinity of the active roof leak above the second-floor office.

Additional Investigation

Additional investigation is recommended at the following locations prior to implementing the repair of the condition.

1. Excavate the foundation walls at the areas of the cracked and displaced portions of the exterior brick work at the first floor on the west elevation below the open-air porch to determine the integrity of the foundations and the extent of the repair required.
2. Remove the soffit of the cantilevered portion of the second floor at the west elevation and expose the existing support condition to determine the nature and extent of the repair required. This investigation should take place after temporary shoring is installed.

We are available to discuss our findings further, and if required, to assist with the implementation of our recommendations.

This report is subject to the Limitations attached.

Sincerely,
The Di Salvo Engineering Group

Bruce Richardson

Bruce D. Richardson, P.E. / Senior Principal
bruce@tdeg.com
(203) 490-4140 ext. 234

LIMITATIONS

1. This report is based on visual observations of conditions that were readily accessible at the time of our review. Conditions may exist which are hidden from view that could affect some of the recommendations contained in this report. The recommendations and conclusions reached, therefore, are based on the information available and are subject to revision if and when additional evidence or information is available.

2. The findings associated with this report are limited to the condition of the visible structural elements. We did not review any other elements of the architectural, structural, mechanical, electrical, plumbing or fire protection systems, and no opinion regarding the adequacy of these systems is implied or intended.

3. Our investigation of the condition of the building was not exhaustive. This report does not express or imply a warranty of any of the building elements or of the entire structure.

4. This report does not include the discovery, testing, monitoring, handling, removal, or disposal of, or exposure of persons to, hazardous materials in any form at the project site, including, but not limited to asbestos, asbestos products, polychlorinated biphenyl (PCB) or other toxic substances.

APPENDIX

PHOTOGRAPHS OF EXISTING CONDITIONS

EXTERIOR CONDITIONS
INTERIOR CONDITIONS

EXTERIOR CONDITIONS

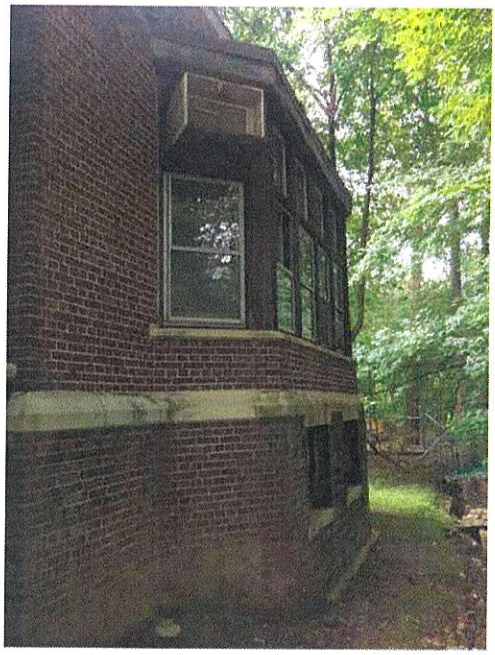
E1. Brick Façade and Parapet at Pre-K Classrooms

E1. Cracked Parapet

E1. Cracked Parapet

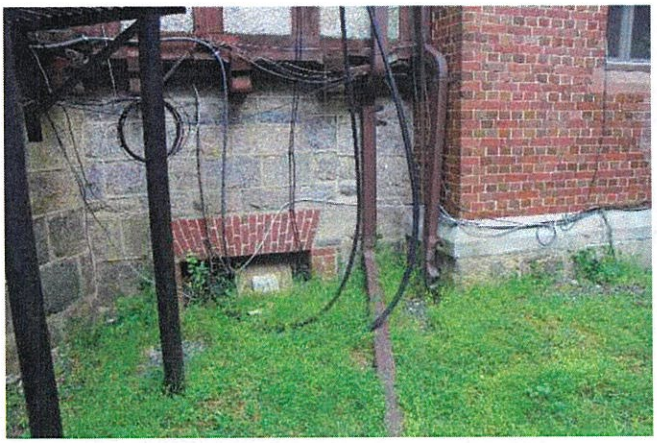
E1. Cracked Parapet

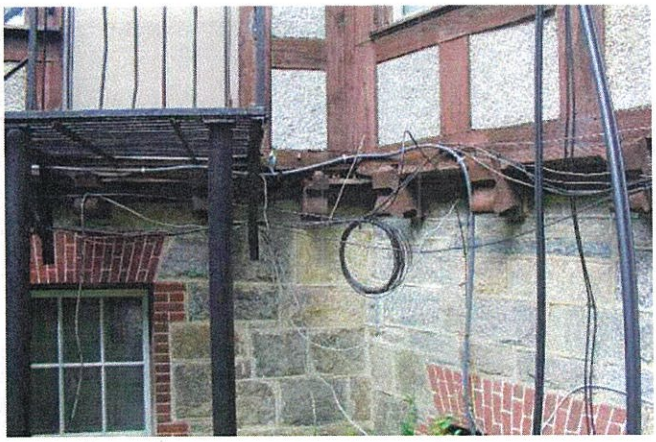
E2. Displaced Site Wall (photo by CSArch)

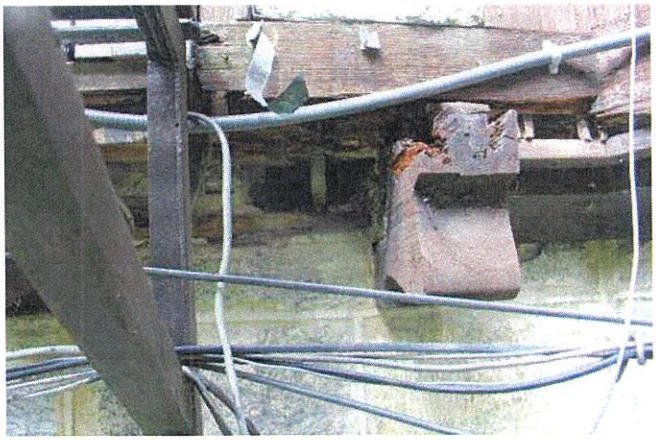


E3. Failed Site Retaining Wall at Far Right – note proximity to the building foundation (photo by CSArch)

Note: E# or I# refers to the Observation item indicated in the report

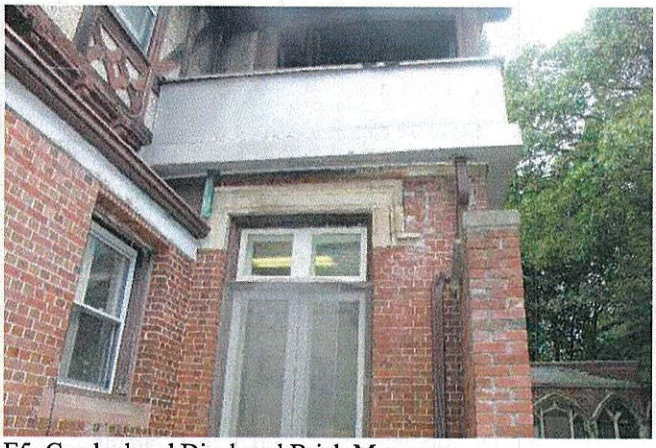




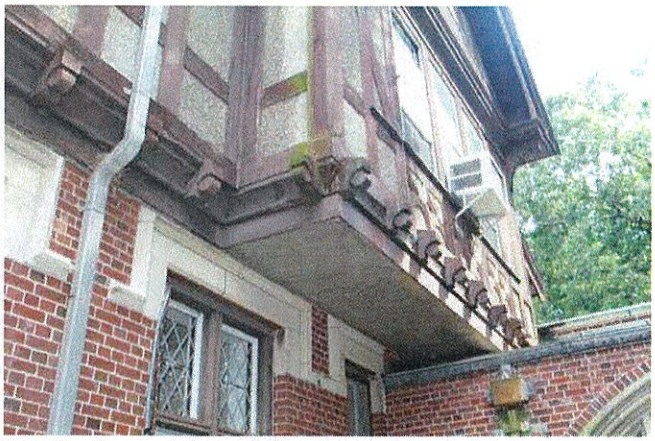


E4. Deteriorated Exposed Timber Elements

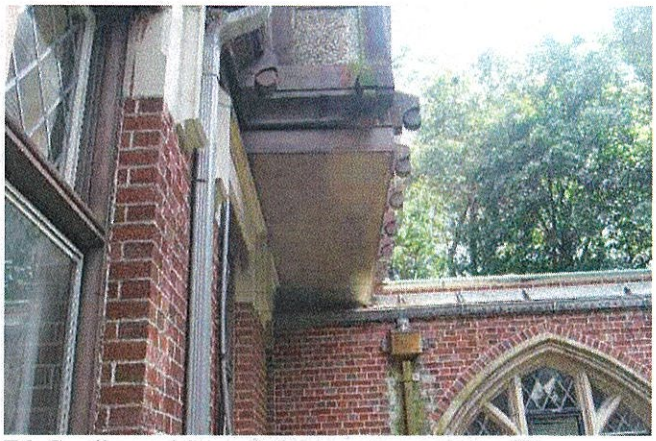
Note: E# or I# refers to the Observation item indicated in the report



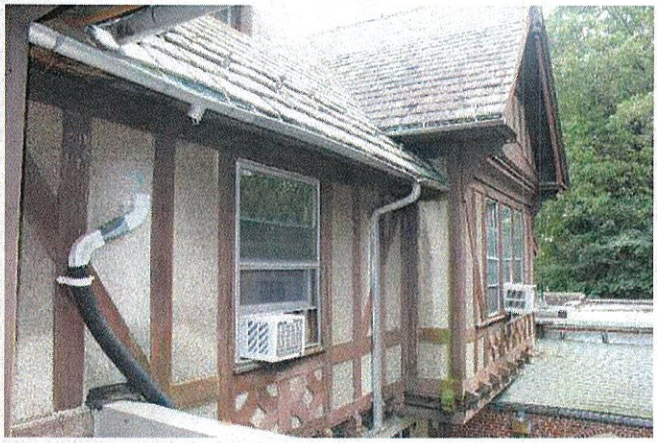
E5. Cracked and Displaced Brick Masonry



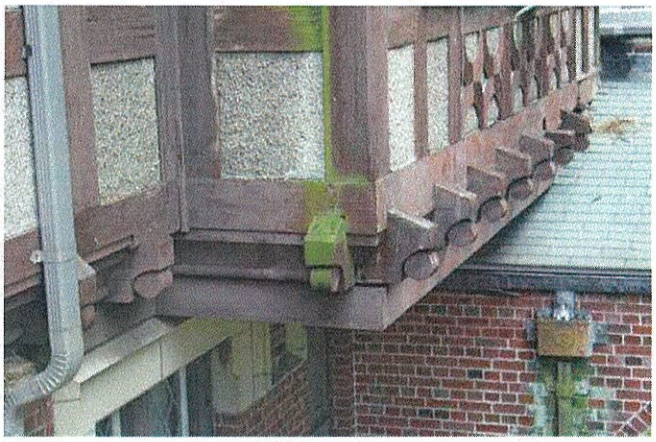
E6. Cantilevered Second Floor



E6. Cantilevered Second Floor – note sagging soffit

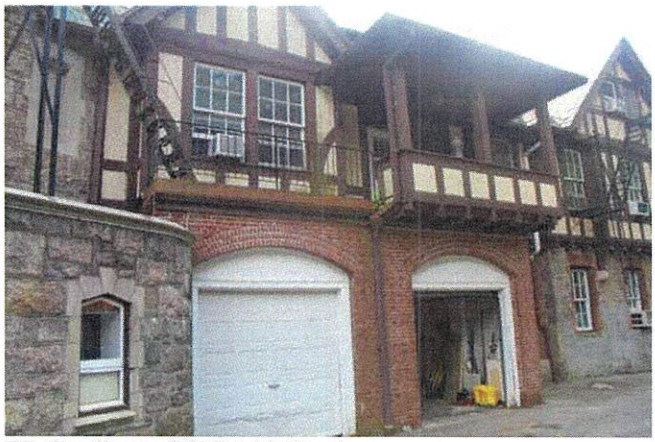


E6. Cantilevered Second Floor



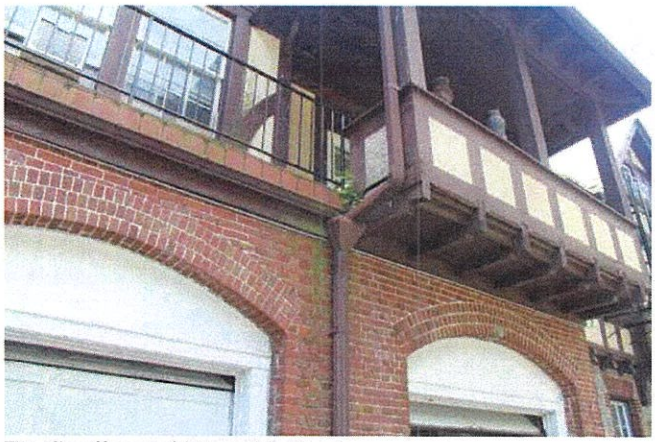
E6. Cantilevered Second Floor

Note: E# or I# refers to the Observation item indicated in the report

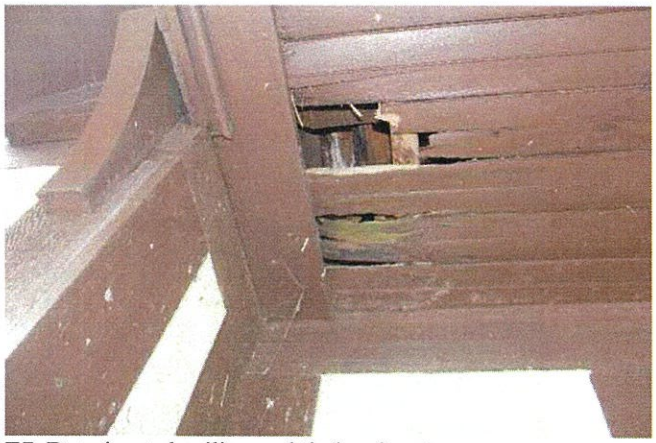


E7. Cantilevered Open-Air Porch

E7. Deteriorated ceiling and timber framing



E7. Cantilevered Open-Air Porch

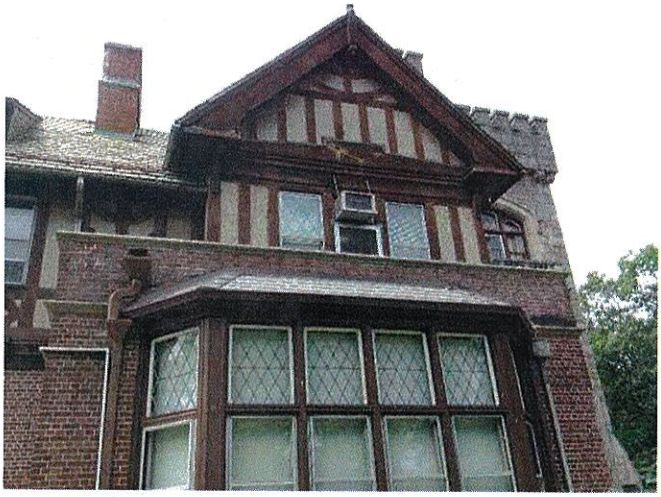


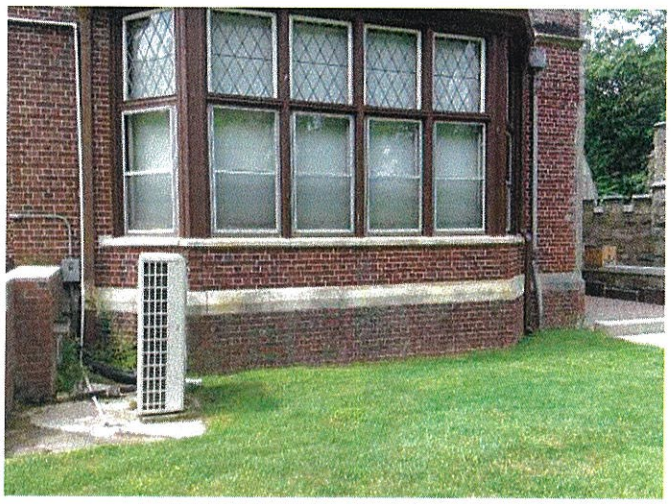
E7. Deteriorated ceiling and timber framing

E7. Porch

E7. And I4. Deterioration of porch floor framing due to water infiltration

Note: E# or I# refers to the Observation item indicated in the report





E8. And E9. Typical Exterior Conditions

Note: E# or I# refers to the Observation item indicated in the report

E9. Typical Exterior Conditions

Note: E# or I# refers to the Observation item indicated in the report

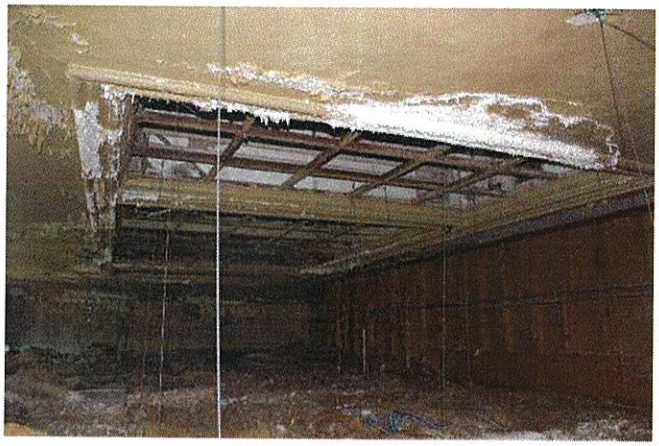
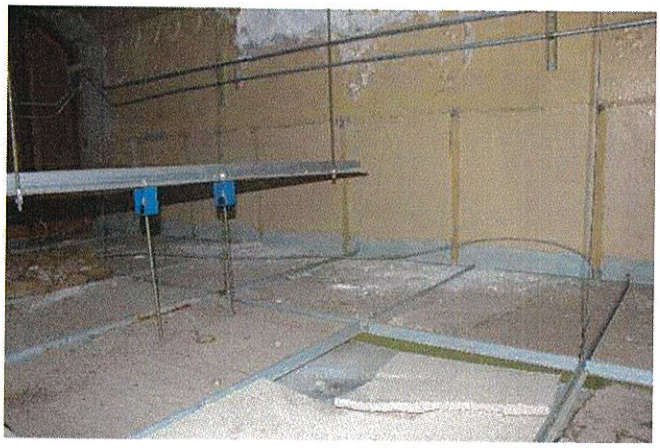
INTERIOR CONDITIONS

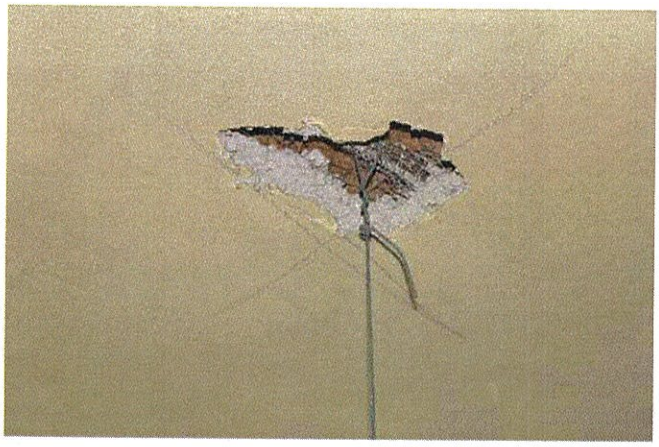
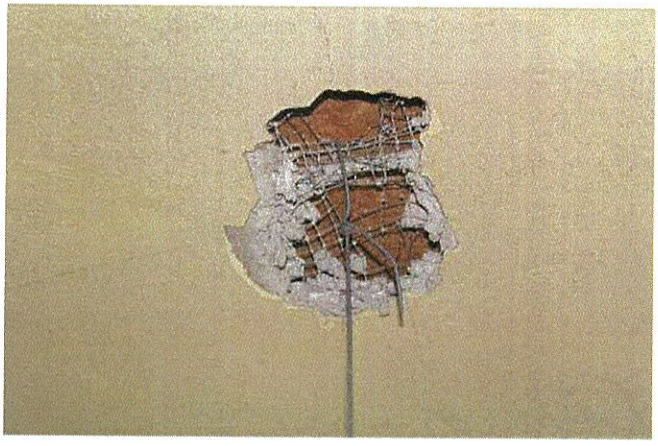





I1. Plaster Ceiling Above Pre-K Classrooms

Note: E# or I# refers to the Observation item indicated in the report

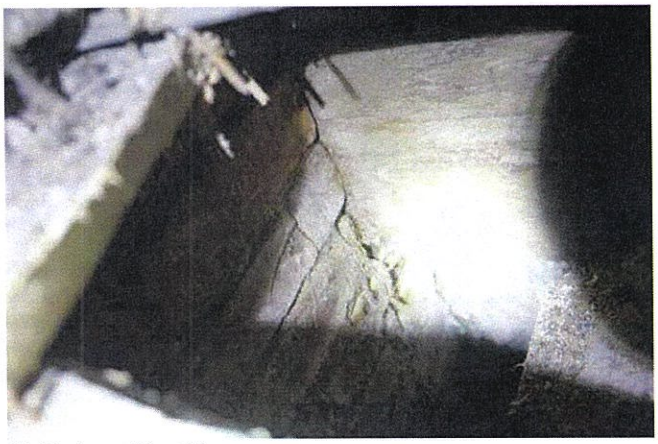
I1. Plaster Ceiling Above Pre-K Classrooms

Note: E# or I# refers to the Observation item indicated in the report

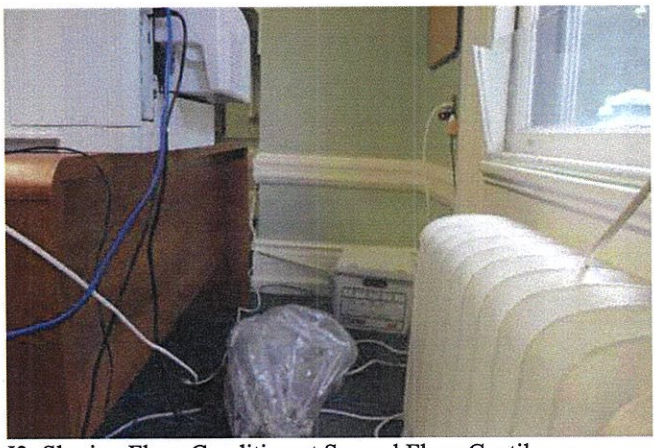
I2. Probe at First Floor

I2. Probe at First Floor

I2. Sloping First Floor



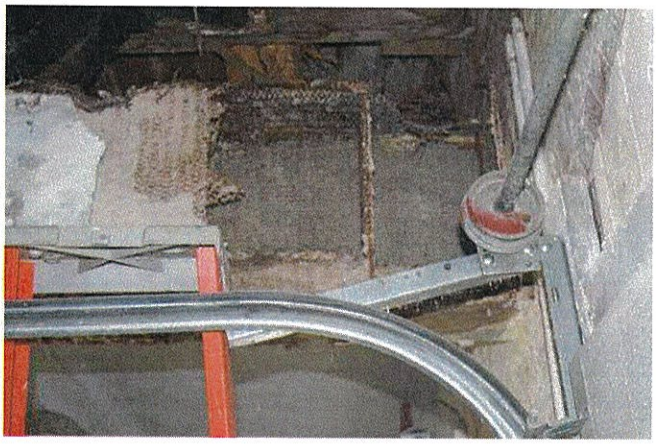
I2. Probe at First Floor

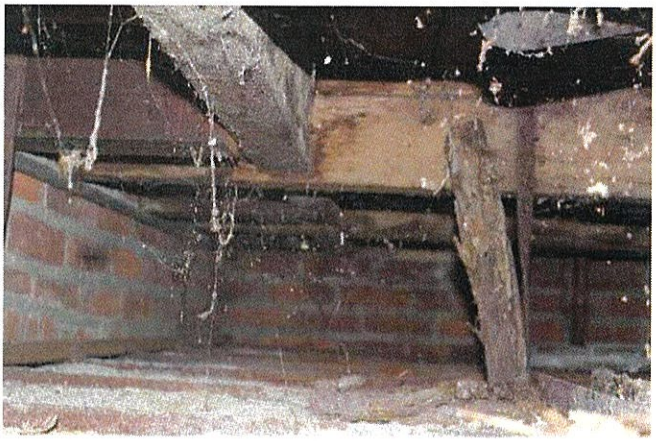


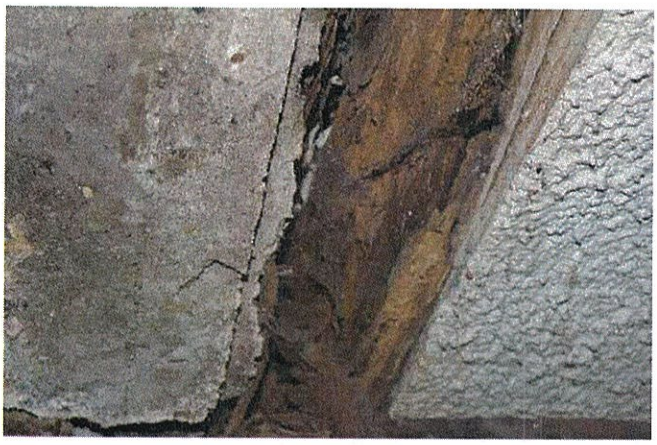
I3. Sloping Floor Condition at Second Floor Cantilever

I3. Probe at Second Floor Cantilever

Note: E# or I# refers to the Observation item indicated in the report

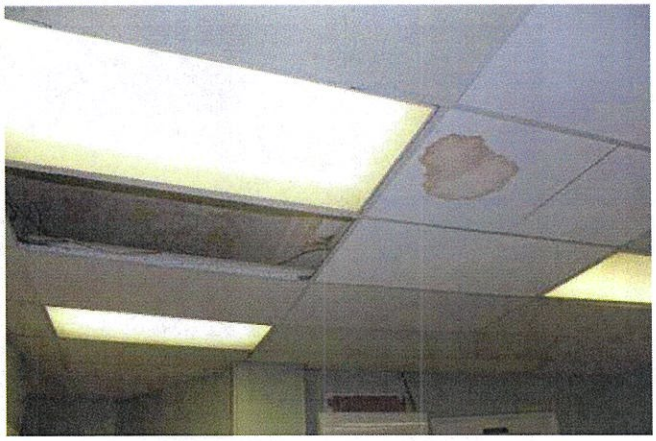




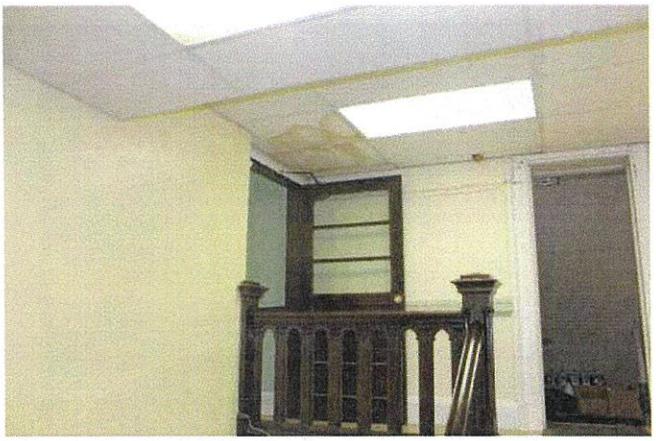


I4. Typical Conditions Below Second Floor Open Air Porch

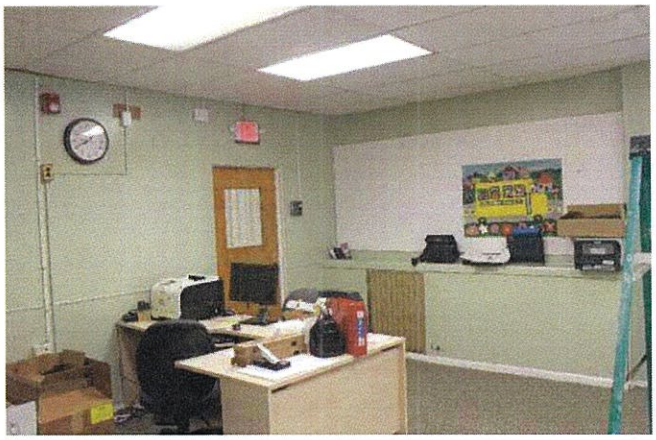
Note: E# or I# refers to the Observation item indicated in the report



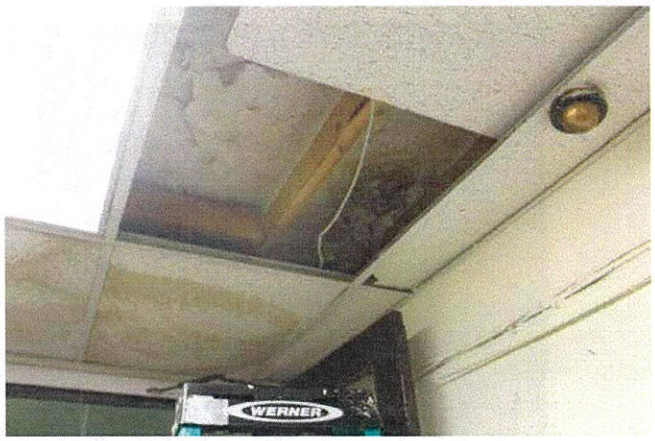
I5. Active Leak Above Second Floor Office



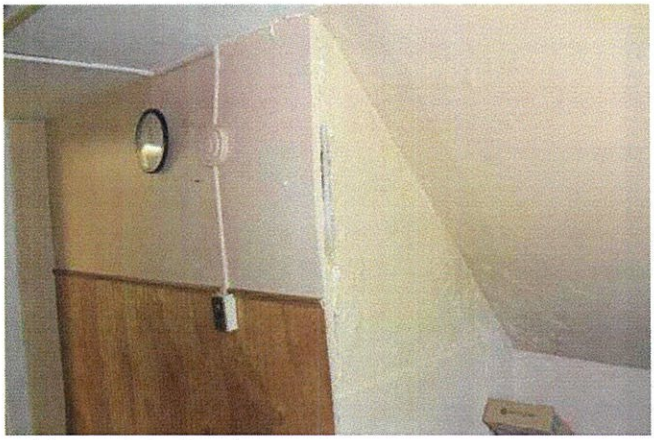
I6. Evidence of Roof Leak



I5. Active Leak Above Second Floor Office



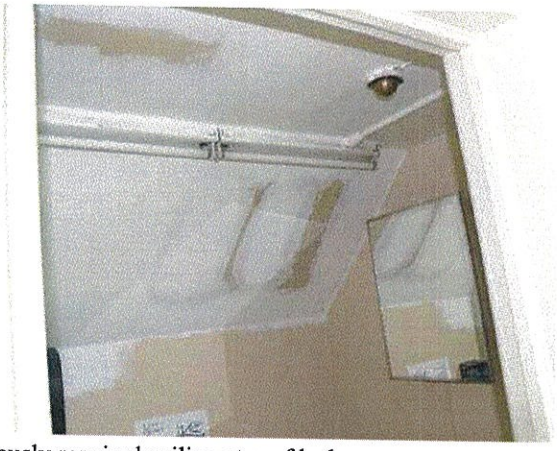
I6. Evidence of Roof Leak



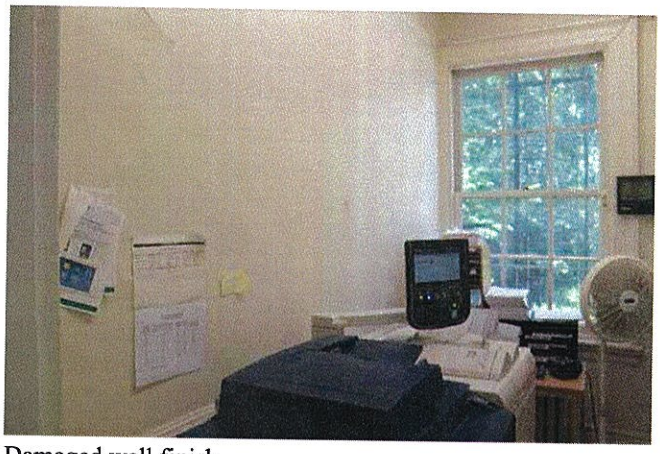
Evidence of Roof Leak

Evidence of Roof Leak

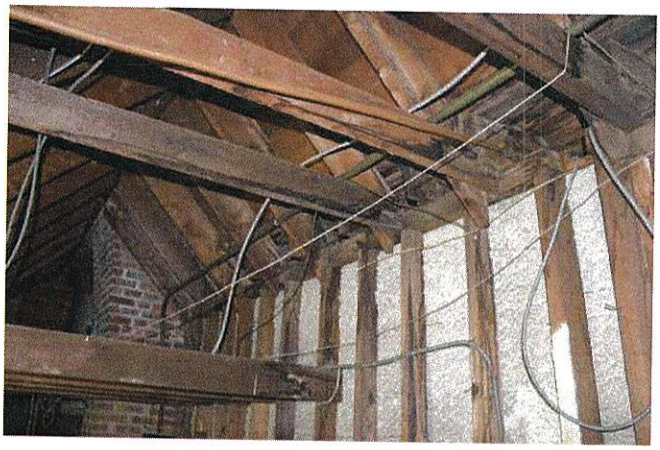
Note: E# or I# refers to the Observation item indicated in the report

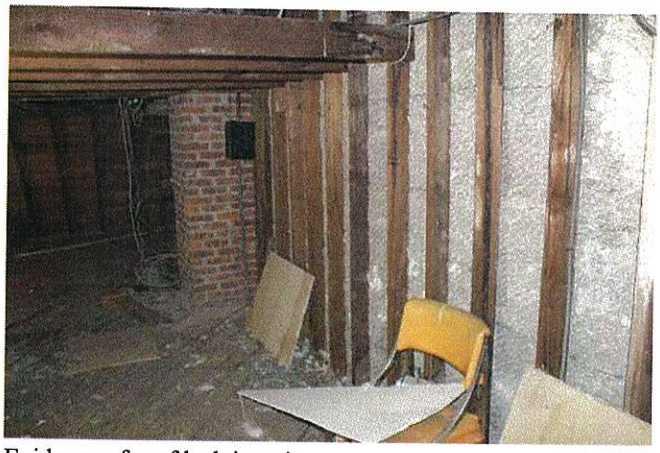


I6. Previously repaired ceiling at roof leak

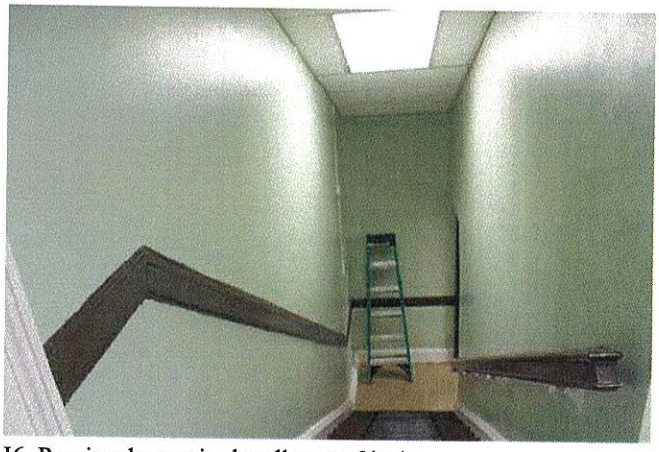


Damaged wall finish





Evidence of roof leak in attic



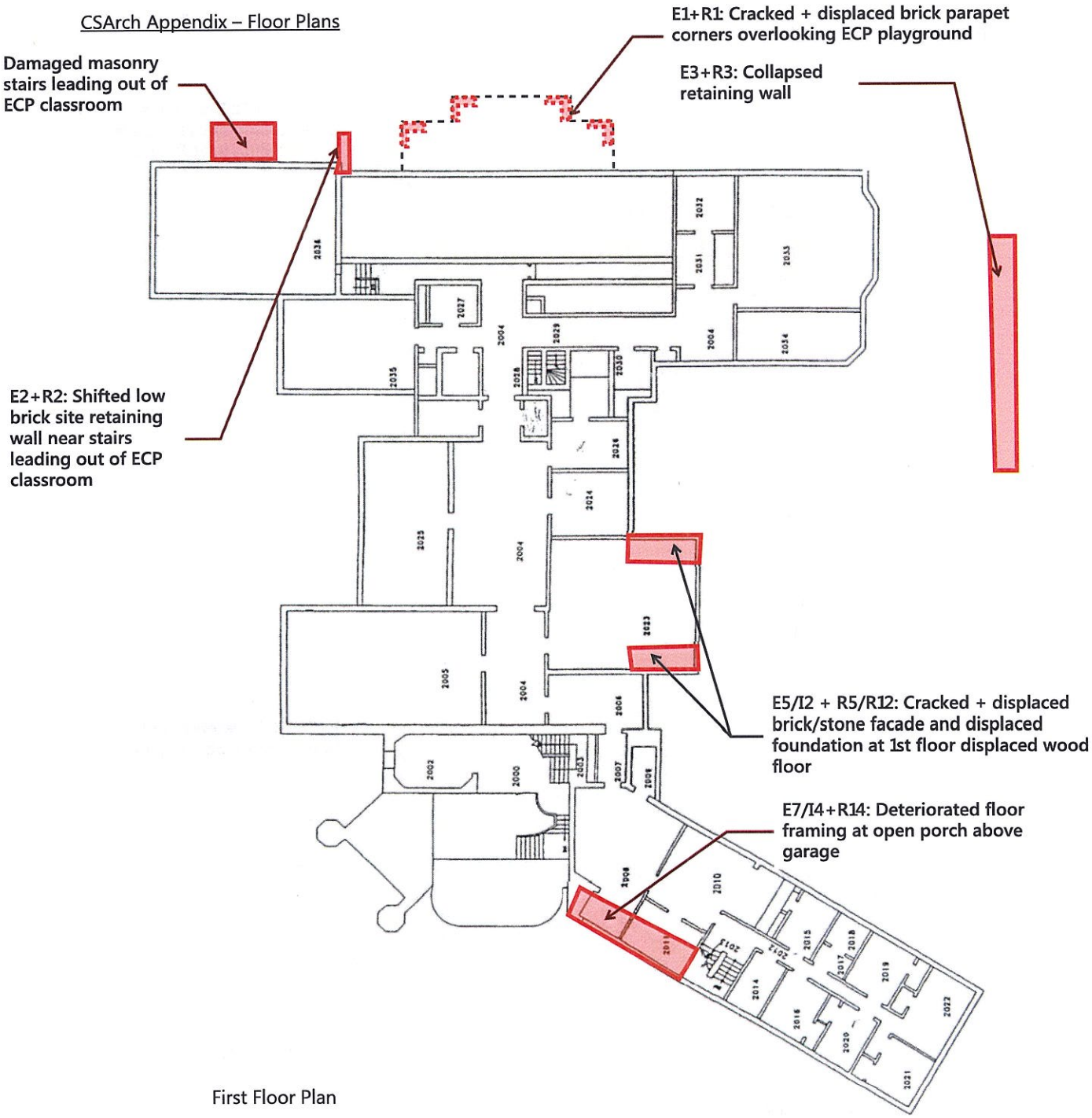
I6. Previously repaired wall at roof leak

APPENDIX TO STUCTURAL ENGINEER'S REPORT: GCSD MANSION PLANS

CSArch Appendix – Floor Plans

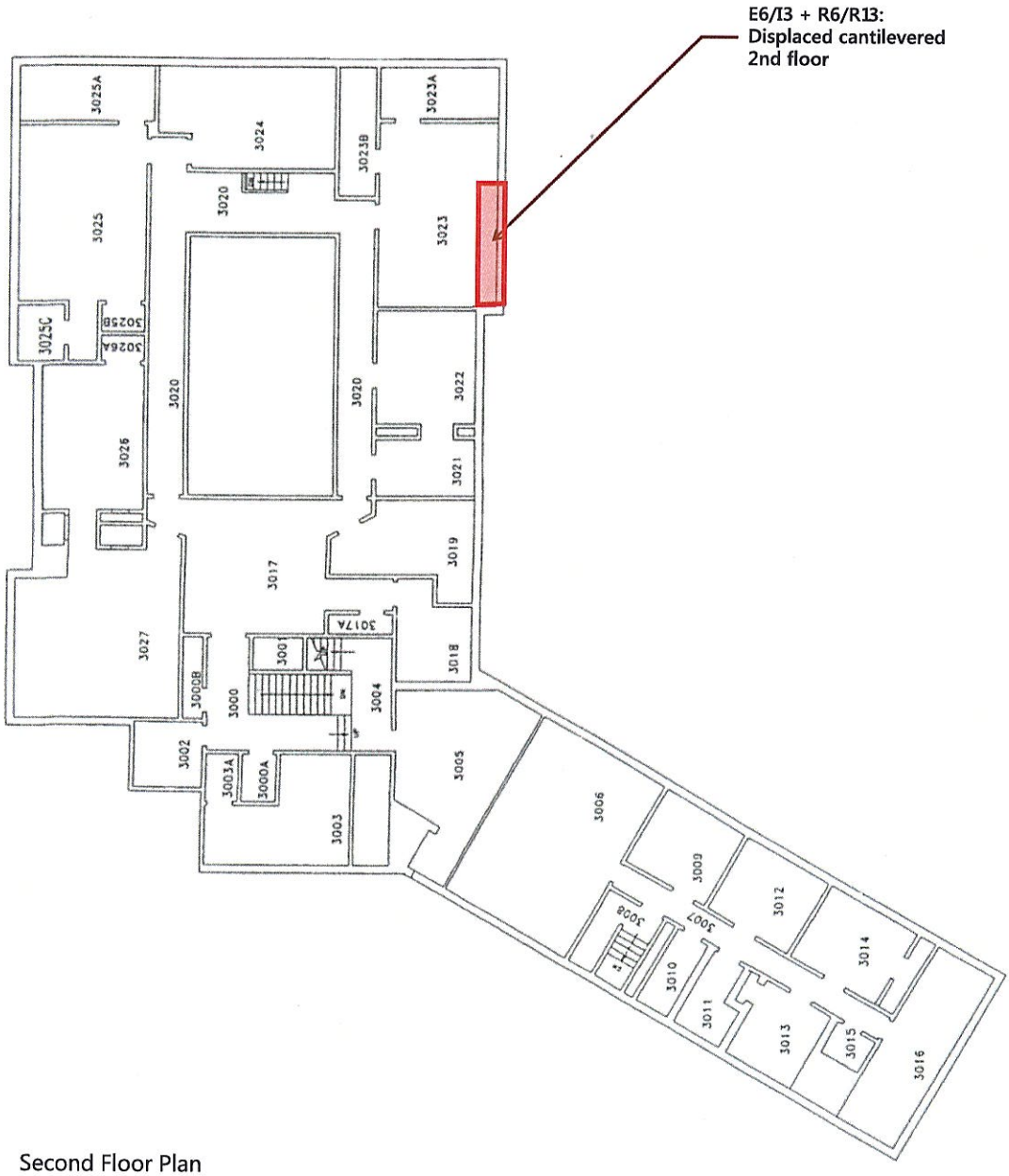
Basement Floor Plan

CSArch Appendix – Floor Plans



First Floor Plan

CSArch Appendix – Floor Plans



Second Floor Plan

STUCTURAL ENGINEER'S REPORT FOR GCSD ECP BUILDING

Lee Farm Corporate Park
83 Wooster Heights Road
Suite 200
Danbury, CT 06810
Tel: (203) 490-4140
www.tdeg.com

The DiSalvo Engineering Group
Structural Engineers

September 13, 2019

Dr. Tahira A. DuPree Chase
Superintendent of Schools
Greenburgh Central School District
Administration Building
475 West Hartsdale Avenue
Hartsdale, NY 10530

Re: Early Childhood Program Building Condition Survey
475 West Hartsdale Avenue, Hartsdale, NY
TDEG Project No. 19188.00

Dear Dr. Chase:

The purpose of this letter is to provide preliminary findings of the initial review of the condition of the Greenburgh CSD Early Childhood Program building at 475 West Hartsdale Ave. in Hartsdale, NY. The purpose of the review was to determine the general condition of the exterior façade and the superstructure. The review was prompted by evidence of previous roof leaks.

The Tudor style building was originally constructed in the early 1900's as a barn on the grounds of a private residence and subsequently adapted for re-use as an educational building. The exterior masonry walls include mortared stone, brick, and panels of stucco with half-timbers.

We visited the site with Karen Chubak, CSArch, and Michael Falcone, Director of Facilities on September 4, 2019. The review consisted of a walk-around survey of the exterior and interior portions of the building to observe and document the general conditions. Our initial observations, opinions, and recommendations follow.

Observations

- The exterior masonry elements of mortared stone, brick, and stucco panels are in generally good condition. No significant areas of deterioration were noted. Portions of the stucco are cracked and discolored.
- The exposed exterior timber elements are in generally fair condition. The paint coating is missing from some of the timber fascia boards.
- The asphalt shingle roofing appears to be nearing the end of its' service life. It is presumed to be a replacement of the original cedar shingle roof.
- Michael Falcone indicated two areas of concern where previous roof leaks occurred as evidenced by discolored ceiling panels in the first floor classrooms.
- Both roof leaks occur in the vicinity of valleys in the roof above. Evidence of long-term water infiltration was noted in the attic at the valleys in the vicinity of the silo.
- Timber valley beams at two locations were noted to be significantly damaged and requiring repair.

Opinion

The conditions noted during this review are considered typical for a building of this vintage. No signs of significant structural deterioration were noted. Repair work is recommended at the deteriorated timber valley beams and to prevent water intrusion which can lead to future deterioration.

Bruce D. Richardson, P.E.
Kenneth D. Jones, P.E.
Trevor B. Hill, P.E.

Opinion, cont'd.
The exterior finishes require routine maintenance at regular intervals and repair of conditions associated with water infiltration. Routine maintenance of exterior finishes includes cleaning and painting of timber elements, maintenance of gutters and downspouts, and replacement of roofing and flashing. The age of the roofing is unknown, but, in general, asphalt roofing shingles of this vintage have an expected service life of 20-25 years.

Exposed masonry elements require routine maintenance at regular intervals and repair of conditions associated with water infiltration. Routine maintenance of exterior masonry work includes tuckpointing deteriorated mortar joints, repair or replacement of cracked or spalled masonry units, and the removal and replacement of joint sealant at the interface between the masonry work and the roofing, flashing, windows and door frames. The application of a clear penetrating water repellent sealer on the exposed masonry elements will help to prevent moisture intrusion. This type of routine maintenance is recommended to avoid the potential for structural deterioration as a result of active water infiltration.

The repair of timber framing members and their connections can be done in a variety of ways depending on the specific condition. Timber repairs can include the use of structural epoxy to patch deteriorated areas, structural epoxy and reinforcing dowels to splice and connect timber members, supplemental framing to "sister" the member or reduce the span, and bolted steel plates to strengthen timber connections.

Recommended Repairs
Recommended repair work includes the following, the specific details and specifications for the repair work are beyond the scope of this report:

The repair work should include the following:
1. Replace the existing roofing and flashing.
2. Repair the deteriorated timber valley beams.
3. Repair and re-coat the exterior timber elements.
4. Repair and re-coat the exterior stucco elements.
5. Coat the exposed masonry elements with a clear penetrating water repellent sealer.
6. Implement a preventative maintenance program to be performed at regular intervals.

We are available to discuss our initial findings further, and if required, to assist with the implementation of our recommendations.

This report is subject to the Limitations attached.

Sincerely,
The Di Salvo Engineering Group

Bruce Richardson

Bruce D. Richardson, P.E. / Senior Principal
bruce@tdeg.com
(203) 490-4140 ext. 234

LIMITATIONS

1. This report is based on visual observations of conditions that were readily accessible at the time of our review. Conditions may exist which are hidden from view that could affect some of the recommendations contained in this report. The recommendations and conclusions reached, therefore, are based on the information available and are subject to revision if and when additional evidence or information is available.

2. The findings associated with this report are limited to the condition of the visible structural elements. We did not review any other elements of the architectural, structural, mechanical, electrical, plumbing or fire protection systems, and no opinion regarding the adequacy of these systems is implied or intended.

3. Our investigation of the condition of the building was not exhaustive. This report does not express or imply a warranty of any of the building elements or of the entire structure.

4. This report does not include the discovery, testing, monitoring, handling, removal, or disposal of, or exposure of persons to, hazardous materials in any form at the project site, including, but not limited to asbestos, asbestos products, polychlorinated biphenyl (PCB) or other toxic substances.

STUCTURAL ENGINEER'S REPORT FOR RJ BAILEY ELEMENTARY SCHOOL

Lee Farm Corporate Park
83 Wooster Heights Road
Suite 200
Danbury, CT 06810
Tel: (203) 490-4140
www.tdeg.com

The DiSalvo Engineering Group
Structural Engineers

September 13, 2019

Dr. Tahira A. DuPree Chase
Superintendent of Schools
Greenburgh Central School District
Administration Building
475 West Hartsdale Avenue
Hartsdale, NY 10530

Re: Richard J. Bailey School Condition Survey
33 West Hillside Avenue, White Plains, NY
TDEG Project No. 19188.00

Dear Dr. Chase:

The purpose of this letter is to provide preliminary findings of the initial review of the condition of the Greenburgh CSD Richard J. Bailey School at 33 West Hillside Ave. in White Plains, NY. The purpose of the review was to determine the general condition of the exterior façade and the superstructure. The review is prompted by evidence of deterioration of the masonry façade and parapets.

The two-story school building was originally constructed in the 1920's and an addition was made in 1938. The exterior walls are constructed of brick with stone accent bands and cast stone decorative panels.

We visited the site with Karen Chubak, CSArch, and Michael Falcone, Director of Facilities on September 4, 2019. The review consisted of a walk-around survey of the exterior and interior portions of the building to observe and document the general conditions. Our initial observations, opinions, and recommendations follow.

Observations

- The exterior masonry elements are in generally good condition. No significant areas of deterioration were noted. Minor spalling of the cast stone elements was noted at a few locations.
- Michael Falcone indicated an area of concern where the roof parapet is displaced. The condition is limited to one corner where a light fixture pole is bolted to the parapet. The displacement is towards the interior (roof) side of the building.
- Michael Falcone indicated three areas of concern where previous roof leaks occurred as evidenced by watermarks in the ceiling of the Auditorium and in a second-floor classroom, and at a previously repaired ceiling of a second-floor classroom.
- The roof leak above the Auditorium occurs in the sloping portion of the roof. Evidence of water infiltration was noted in the attic at this location. No evidence of structural deterioration of the roof framing in the vicinity of the roof leak was noted.
- The roof leak above the classroom occurs in the flat portion of the roof, adjacent to an exterior wall. A date stamp of 1993 was noted on the exposed membrane roofing near this location.
- The previously repaired ceiling in the classroom appears to be in good condition, no evidence of subsequent leaks was noted.

Bruce D. Richardson, P.E.
Kenneth D. Jones, P.E.
Trevor B. Hill, P.E.

Observations, cont'd.

- Michael Falcone indicated areas of concern in two ground floor classrooms where water infiltration occurs following rain events. The areas occur where exterior grade elevation is above the ground floor slab. No evidence of active water infiltration was noted during our visit.

Opinion

The conditions noted during this review are considered typical for a building of this vintage. No signs of significant structural deterioration were noted. Repair work is recommended to prevent water intrusion which can lead to future deterioration.

The exterior finishes require routine maintenance at regular intervals and repair of conditions associated with water infiltration. Routine maintenance of exterior finishes includes maintenance of roof drains, gutters and downspouts and replacement of roofing and flashing. Asphalt shingle roofing and membrane roofing of this vintage have an expected service life of 20-25 years. It is probable that the roofing has exceeded its' expected service life.

Exposed masonry elements require routine maintenance at regular intervals and repair of conditions associated with water infiltration. Routine maintenance of exterior masonry work includes tuckpointing deteriorated mortar joints, repair or replacement of cracked or spalled masonry units, and the removal and replacement of joint sealant at the interface between the masonry work and the roofing, flashing, windows and door frames. The application of a clear penetrating water repellent sealer on the exposed masonry elements will help to prevent moisture intrusion. This type of routine maintenance is recommended to avoid the potential for structural deterioration as a result of active water infiltration.

Recommended Repairs

Recommended repair work includes the following, the specific details and specifications for the repair work are beyond the scope of this report:

The repair work should include the following:

1. Replace the existing roofing and flashing.
2. Repair the displaced portion of the roof parapet.
3. Repair the spalled portions of the exterior masonry.
4. Coat the exposed masonry elements with a clear penetrating water repellent sealer.
5. Seal the portions of the exterior wall where exterior grade elevation is above the ground floor slab.
6. Implement a preventative maintenance program to be performed at regular intervals.

The Di Salvo Engineering Group
Structural Engineers

We are available to discuss our initial findings further, and if required, to assist with the implementation of our recommendations.

This report is subject to the Limitations on the following page.

Sincerely,
The Di Salvo Engineering Group

Bruce Richardson

Bruce D. Richardson, P.E. / Senior Principal
bruce@tdeg.com
(203) 490-4140 ext. 234

LIMITATIONS

1. This report is based on visual observations of conditions that were readily accessible at the time of our review. Conditions may exist which are hidden from view that could affect some of the recommendations contained in this report. The recommendations and conclusions reached, therefore, are based on the information available and are subject to revision if and when additional evidence or information is available.

2. The findings associated with this report are limited to the condition of the visible structural elements. We did not review any other elements of the architectural, structural, mechanical, electrical, plumbing or fire protection systems, and no opinion regarding the adequacy of these systems is implied or intended.

3. Our investigation of the condition of the building was not exhaustive. This report does not express or imply a warranty of any of the building elements or of the entire structure.

4. This report does not include the discovery, testing, monitoring, handling, removal, or disposal of, or exposure of persons to, hazardous materials in any form at the project site, including, but not limited to asbestos, asbestos products, polychlorinated biphenyl (PCB) or other toxic substances.