Report of

Structural Evaluation

For

Alexander Crummell School
1900 Gallaudet Street, NE
Washington, D.C.

April 29, 2008

Provided By:
Faithful+Gould, Inc.

Provided For:
District of Columbia
Office of Property Management

FAITHFUL+GOULD

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April 29, 2008

District of Columbia Capital Construction Services Administration
Office of Property Management
2000 14th Street, NW Eighth Floor
Washington, D.C. 20009

Attention: Mr. Amar Singh
Project Manager

Reference: Report of Structural Evaluation
Alexander Crummell School
1900 Gallaudet Street, NE
Washington, D.C.
Faithful+Gould Project No. 55357-09

Dear Mr. Singh:

Faithful+Gould, Inc. has completed a report of our structural evaluation of the Alexander Crummell School located at 1900 Gallaudet Street in Northeast Washington, D.C ("the Property").

This report provides a summary of the project information known to us at the time of the study, the scope of work performed, an evaluation of the visually apparent condition of the structural systems contained at the Property, an analysis of structural upgrades required to facilitate change-of-use to commercial office occupancy, and our opinions of costs for structural repairs and upgrades required to facilitate re-use of the Property.

The evaluation was completed in general accordance with Faithful+Gould's proposal for Facilities Condition Assessment services (Faithful+Gould Proposal No. 08-55-0911R) dated April 7, 2008 as authorized by the District of Columbia Office of Property Management by issuance of Purchase Order number PO256770 dated April 15, 2008.

It has been a pleasure working with you on this project and we look forward to working with you on other projects.

Very Truly Yours,

David L. Elwyn, P.E.
Registered Structural Engineer

Benjamin Dutton, MRICS
Senior Associate

cc. File

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EXECUTIVE SUMMARY

The Alexander Crummell School located at 1900 Gallaudet Street in Northeast Washington D.C. ("the Property") consists of a two-story (with basement service level) school building containing a measured gross floor area of approximately 20,172 square feet and a net usable area of approximately 13,060 square feet . The Property is contained upon a 2.479-acre (108,029 square feet) site (Parcel 142/Lot 22) bounded by Gallaudet Street and Kendall Street, Northeast.

The Property was designed in 1909 by the architectural practice of Snowden Ashford at the time of their appointment as the first Municipal Architect of the District of Columbia. Development of the Property commenced in 1910 with occupation in early 1912. The Property has been closed and unoccupied since circa 1977.

On April 18, 2008 Benjamin Dutton and Richard North of Faithful+Gould visited the Property to observe and document the condition of the structural systems. The Property is designed in the renaissance style and contains four principal teaching rooms at each of the two upper levels. The basement level appears to contain primarily service installations and storage areas. We were unable to gain access to the basement level.

The building is placed in a square configuration with load-bearing exterior brick walls with limestone sills and recessed steel shelf lintels, large banks of single-glazed wood-framed sash windows, and a hip roof system covered with a replacement temporary single-ply Poly Vinyl Chloride (PVC) roof system. Mechanical, electrical and plumbing systems had been largely removed or dismantled at the time of our site visit. The building did not contain any fire or conveyance systems.

The building structure consists of structural bolted steel (iron) columns, girders and concrete encased joists supporting steel-wire reinforced 2" thick cinder concrete elevated floor slabs, with 3 ½" cinder fill and a 1" finish. The girders and beams are loaded onto internal steel columns, internal load-bearing brick walls or the perimeter load-bearing brick wall system. The roof system consisted of wood rafters bearing onto the internal and perimeter load-bearing brick wall systems and structural steel girders. Based upon the age of the building and the superstructure type, we anticipate that the foundation system consists of cast-in-place concrete spread footings.

Ceiling systems consist of non-structural steel grids at the first floor and portion of the second floor, and load-bearing wood joists at principal portions of the second floor. Stairs consisted of site-fabricated steel pan and tread assemblies with cast-in-place concrete filled intermediate landings. Stairs were supported on the respective floor slabs with intermediate landings supported on the exterior load-bearing brick wall system.

<u>Despite the generally deteriorated condition of the building, the structural systems appeared to be in good visual condition with certain exceptions. The steel columns, girders and joists were generally in good condition with only localized instances of surface corrosion noted. No significant instances of sectional corrosion or flange separation were noted. With the exception of localized instances of cracked bricks and deteriorated mortar, the interior and perimeter load-bearing brick wall systems were in good condition. The elevated floor system appeared to be in good condition with no significant instances of settlement or deterioration noted. We did not observe any instances of settlement that would indicate failure or significant deterioration of the foundation system.</u>

<u>Prior to 2003, the original roof system was severely deteriorated resulting in extensive and prolonged water ingress into the building. This ingress resulted in damage to approximately 20% of the roof rafters and associated tongue and groove wood roof decking. At the time of installing a replacement (temporary) roof system in circa 2003, deteriorated rafters and decking were replaced. The replacement and original systems appear to be in good condition and of an adequate size and spacing to support the installation of a permanent roof system including a slate system as installed at the time of building construction.</u>

<u>The two sets of steel pan stair were in poor condition. We noted numerous instances of sectional corrosion at treads and at the tread to riser connection, and complete detachment and failure of numerous steps sections. We have recommended budgeting for complete replacement of the stairs prior to continued access or occupancy.</u>

In addition to determining the visual condition of the structural systems, Faithful+Gould was requested to determine the adequacy of the structural systems should the building be converted to commercial office use (Group B use). In order to complete this request, we compared the loading capacity of the installed systems with the requirements for commercial office use imposed by the presently enforced District of Columbia structural code (the 1996 edition of the BOCA Basic National Codes with the District of Columbia Construction Code supplements of March 2007). Based upon this comparison, the installed structural systems appear adequate to support a change-of-use without the completion of structural upgrades.

We have summarized our opinion of cost for the anticipated capital replacement and repair of the structural systems that may be necessary to require re-use of the building for commercial office use. These expenditures are discussed throughout this report and are categorized within the capital expenditure forecast included in Appendix A. The attached capital expenditure forecast only includes predicted capital expenditures with an individual value in excess of $3,000 and those expenditures that directly relate to the structural systems.

This report and the attached expenditure forecast generally identify the Expected Useful Life (EUL) and the Remaining Useful Life (RUL) of observed systems and components. EUL is projected based upon industry-standard guidelines and our experience with similar systems. RUL is projected based upon our assessment of age, condition and maintenance / repair history.

Our opinion of cost included within this report are based upon our experience with similar buildings and systems, industry-standard cost data, local cost data. The costs provided are for planning purposes only. Actual project costs may vary significantly to those projected based upon inflationary factors, weather and time of season, unforeseen economic circumstances and market trends, contractor schedules, unusual owner requirements, and other factors beyond our control.

This report has been presented based upon our on-site observations, information provided to us, and our experience with similar systems. If any information becomes available that is not consistent with the observations or conclusions expressed within this report, we request that this information be immediately forwarded to us.

The evaluation of existing structures requires that certain assumptions be made regarding existing conditions. This evaluation was based upon our visual non-destructive evaluation of accessible conditions of the Property. Furthermore, this evaluation was limited in time on-site, fee, and scope and was not based upon a comprehensive engineering evaluation. As such, our report is not intended to represent a complete review of all systems or system components or a check or validation of design professionals' computations. Therefore, Faithful+Gould's evaluation and this report do not represent, warranty or guarantee any system or system component or the future performance of any site improvement.

SCOPE OF SERVICES & DOCUMENT REVIEW

Faithful+Gould was requested to complete an evaluation of the structural systems contained at the former Alexander Crummell School located at 1900 Gallaudet Street in Northeast Washington D.C. The scope of services for the evaluation consisted of performing a visual assessment of the structural systems and determining repair, replacement and upgrade projects required to allow those systems to meet presently enforced code requirements for commercial office use.

This scope was completed by determining the visual condition of the structural systems, determining the condition and configuration of the systems, and comparing the loading capabilities of these systems with those required by the presently enforced District of Columbia building code relating to commercial office use.

This evaluation has been conducted in general accordance with industry standards and the American Society for Testing and Materials (ASTM) Standard E 2018-01 Standard Guide for Property Condition Assessment: Baseline Property Condition Assessment Process.

Structural Evaluation

We performed a visual non-destructive assessment of the structural components of the Property. We observed the structural systems for visible signs of distress and have reported our findings. We also reviewed the building codes to which the structures will be subject to assuming conversion to commercial office use.

The scope of services under which the structural evaluation was completed was visual in nature and not intended to be destructive to the Property to gain access to hidden conditions. We did not perform any destructive testing or uncover or expose any system members. We have documented the type and extent of visually apparent defects in the systems in order to perform the condition assessment.

The scope of services under which the structural evaluation was completed includes only those items specifically indicated. The evaluation does not include any environmental services such as (without limitation) sampling, testing, or evaluation of asbestos, lead-based paint, lead-in-water, indoor air quality, PCB’s, radon, mold, or any other potentially hazard materials, air-borne toxins or issues not outlined in the previous scope of services. In addition, the assessment does not include identification of underground soils, identification, or quantification of underground contaminants.

Document Review

- 1996 edition of the BOCA Basic National Codes with the District of Columbia Construction Code supplements of March 2007

1.0 STRUCTURAL SYSTEMS

The description of the respective structural systems is based upon our observation of exposed portions of the building structure at the upper levels, exteriors, attic space and limited areas of the basement.

1.1 Description

The building structure consists of structural bolted steel (iron) columns, girders and concrete encased joists supporting steel-wire reinforced 2" thick cinder concrete elevated floor slabs, with 3 ½" cinder fill and a 1" finish. The girders and beams are loaded onto internal steel columns, internal load-bearing brick walls or the perimeter load-bearing brick wall system. The roof system consisted of wood rafters bearing onto the internal and perimeter load-bearing brick wall systems and structural steel girders. Based upon the age of the building and the superstructure type, we anticipate that the foundation system consists of cast-in-place concrete spread footings.

Ceiling systems consist of non-structural steel grids at the lower floor level and portions of the upper level, and load-bearing wood joists at the second floor. Stairs consisted of site-fabricated steel pan and tread assemblies with cast-in-place concrete filled intermediate landings. Stairs were supported on to respective floor slabs with intermediate landings supported on the exterior wall system.

Loadings and Lateral Design

Based upon the type, sizings and spacings of the structural systems, we anticipate that the building was designed for the following superimposed live loads detailed in pounds per square foot (psf):

- Upper Floors - 60 psf
- Roof - 20 psf

Foundations

In the absence of structural drawings, we were unable to determine the foundation system. However, based upon the building construction and our experience with similar buildings, we anticipate that the building is founded on cast-in-place concrete spread footings.

Lowest Floor Level

The lowest floor level is contained at the basement level and consists of a 4" thick cast-in-place concrete slab-on-grade. In the absence of structural drawings, we were unable to determining the reinforcing profile or subgrade of the floor slab.

Upper Floor Levels

The floor system at the first floor and second floor consisted of a 6 ½" thick elevated structural floor system supported on steel joists (reference Photographs 1 through 4 in Appendix B). The sectional detail of the floor system appeared to consist of 2" thick cinder concrete with 3 ½" cinder fill and a 1" finish.

The floor system was supported on concrete encased steel joists (girders) spaced at 8' on-center and spanning in the north-south direction for a travel direction of east-west. Joists were encased in cast-in-place concrete with a sectional dimension of 12" x 12". The supporting floor joists beared onto a network of structural steel girders and columns, and interior and exterior perimeter load-bearing brick walls.

Superstructure

The structural floor slabs, associated steel joists and remaining loads were designed to bear onto load-bearing perimeter and interior brick walls and bolted structural steel columns and girder beams. The structural layout plan included within Appendix C indicates the location of the supporting superstructure components at the upper levels.

Steel (iron) I beams / girders supported the live and dead superimposed loads at the central core of each of the two upper levels. Girders were supported on either steel I columns or the load-bearing brick wall system (reference Photograph 5 in Appendix B) and were provided with a depth of 16", a width of 6 ½", a flange depth of 3" and a flange thickness of ¼". The connection between the girders and columns was made using steel L brackets bolted to each column and girder section (reference Photograph 6 in Appendix B).

Columns were provided with a depth of 12", a width of 6", a flange depth of 2 ¾" and a flange thickness of ¼" (reference Photograph 7 in Appendix B). Columns were placed at spacings of 24' on-center in the east-west direction and 12' on-center in the north-south direction. The majority of the columns and girder were placed within plaster on steel mesh enclosures.

Live and dead superimposed loads at non core areas were supported by interior load-bearing brick walls and the perimeter exterior load-bearing brick walls (reference Photographs 8 & 9 in Appendix B). The brick wall sections consisted of a three wythe brick laid in stretcher bond with a thickness of 1'-2". Walls were placed at spacings of 8' to 24' on-center in the east-west direction and 10' to 32" on-center in the north-south direction.

Stairs

The building contains two set of switch-back stairs provided at the north and south elevations (reference Photographs 10 & 11 in Appendix B). Stairs provide passage from each of the two main entrances down to the basement level and up to the first and second floors.

Stairs are 6' wide and of prefabricated steel pan construction with a riser height of 7" and a tread width of 11 ½" to provide a linear feet length at each 18' to 22' feet. Each of the ten prefabricated stair sections is supported on the elevated floor system and intermediate landings. Intermediate landings consist of steel-framed box enclosures with a 5" cast-in-place concrete fill. Landings are supported on the perimeter load-bearing brick wall system.

Internal Walls

Interior walls consist of a combination of load-bearing brick or steel (iron) stud walls. Load-bearing brick walls consisted of three wythe brick laid in stretcher bond with a thickness of 1' 3". Non-load bearing walls consisted of 1" x 1" steel studs placed at 14" on-center and supporting a painted plaster wall covering applied over non-galvanized steel mesh.

Ceilings

The ceiling systems varied by location. Ceilings installed at the central core consisted of non load-bearing ceiling systems supported on 1" x 1" framing formed into 12" x 12" squares and supporting a painted plaster ceiling covering applied over non-galvanized steel mesh.

A structural ceiling system was provided at southern rooms of the second floor. The structural system consisted of 2" x 6" wood joists placed at 16" on-center and provided with mid-span lateral bracing (reference Photograph 12 in Appendix B). Ceiling joists supported a painted plaster ceiling covering applied over non-galvanized steel mesh. Portions of the building were not provided with a ceiling system, with the underside of the structural floor system left exposed.

Exterior Wall Systems

The exterior wall system consisted of a three wythe brick laid in stretcher bond with a thickness of 1' 3" (reference Photographs 13 through 16 in Appendix B). Connection between the two brick courses was achieved through the use of fish tail wall ties. The wall system contained numerous window banks. The wall system above the window banks and other openings was supported on steel shelf lintels set integrally into the brick wall system.

Roof Structure

The roof structure consisted of a wood-framed system constructed in a hip configuration. The structural system consisted of a combination of replacement and original nominal 2" x 8" wood joists placed at 24" on-center (reference Photographs 17 through 20 in Appendix B). Rafters supported original 1" x 3" tongue and groove herringbone wood roof decking and replacement 7/16" plywood sheathing.

Rafters bear onto the brick exterior wall system with attachment against lateral and uplift loads achieved through the use of steel bearing plates. The lower sections of the rafters are provided with 2" x 10" wood ties placed at a 30 degree angle and connecting between the rafters and mid-span steel I girder (reference Photograph 21 in Appendix B). The girder was supported on the perimeter and interior load-bearing brick walls and provided with a depth of 16", a width of 6 ½", a flange depth of 3" and a flange thickness of ¼" (reference Photograph 22 in Appendix B).

Support of each rafter at the mid-span was provided by king post columns consisting of 6" x 6" wood posts bearing onto and attached to the mid-span structural steel girder with bolted steel L brackets (reference Photograph 23 in Appendix B). The posts support three sistered 2" x 10" wood joists which sit against the vertical section of each rafter.

1.2 Condition

Faithful+Gould evaluated the physical visual condition of the structural systems and determined the capability of the structural systems to meet the requirements of the presently enforced District of Columbia code if converted to commercial office use. The condition section of this report is broken into two subsections. The first subsection considers visual condition. The section subsection considers compliance with the presently enforced District of Columbia structural code.

1.2.1 Visual Condition

Foundations

In the absence of documentation on the existing foundation system and soil properties, the best indication of the adequacy of the building's foundation system is the condition of the building that it has supported for almost 100 years. Our visual condition assessment revealed no evidence of differential settlement, door or window openings out of alignment, cracking of masonry walls, or floor decks out of level which would be indicative of foundation deficiencies.

We do not anticipate that repair, replacement or underpinning of the foundation system will be required to facilitate code compliant re-use / change-of-use of the building.

Lowest Floor Level

We were unable to access the entire basement (lowest) level of the building due to enclosure of the basement by brick security walls. Therefore, our evaluation of the lower level floor slab was based upon localized sections observed at each of the two primary entrances.

Portions of the slab observed appeared to be in good condition with no evidence of settlement, overloading, sectional cracking or other distress noted. We do not anticipate that repair, replacement or capital refurbishment of the slab will be required to facilitate code compliant re-use / change-of-use of the building.

Upper Floor Levels

The upper floor slabs contained at the first and second floors appeared to be in good condition with no significant instances of spalled concrete, underfoot deflection, structural settlement or other areas of concern noted.

Superstructure

The steel-framed superstructure appeared to be in good condition. We noted only localized instances of surface corrosion (reference Photograph 24 in Appendix B), and no significant instances of structural deflection, sectional corrosion, flange corrosion, deterioration of fasteners or other areas of deterioration that would reduce the systems integrity or life-cycle.

The interior and exterior load-bearing brick wall system appeared to be in good condition with no significant instances of deterioration, overloading or deflection noted.

Stairs

Prior to 2003, the original roof system was severely deteriorated, resulting in extensive and prolonged water ingress into the building. This ingress resulted in significant deterioration and general failure of the two stair assemblies. We noted numerous instances of sectional corrosion at treads and at the tread to riser connection, and complete detachment and failure of numerous steps sections (reference Photographs 25 & 26 in Appendix B). We have recommended budgeting for complete replacement of the stairs prior to continued access or occupancy.

Internal Walls

Load-bearing brick walls were in good structural condition with no significant instances of deterioration, deflection or overloading noted.

Interior non-load bearing walls were in generally poor condition with widespread instances of stud and mesh corrosion, and impact damage noted (reference Photograph 27 in Appendix B). Replacement will be required prior re-use. As a non-structural element, we have assumed that replacement of non structural walls will be completed as part of any re-configuration of the interiors, and have therefore not included costs for this work within the attached capital expenditure forecast.

Ceilings

The structural ceiling systems (i.e. wood joist system) at the second floor appeared to be in good condition with no significant instances of structural deflection, overloading or other deterioration noted.

Non-load bearing ceiling systems were in generally poor condition with widespread instances of steel and mesh corrosion, and historic water damage noted (reference Photographs 28 through 30 in Appendix B). Replacement will be required prior re-use. As a non-structural element, we have assumed that replacement of non structural ceiling systems will be completed as part of any refurbishment of the interiors, and have therefore not included costs for this work within the attached capital expenditure forecast.

Exterior Wall Systems

The exterior wall system appeared to be in good condition and of an adequate width and configuration to support superimposed dead and live loads. Assuming on-going maintenance and as-needed tuckpointing of the wall system, we do not anticipate a requirement to complete significant structural upgrade of the exterior wall system.

Roof Structure

Prior to 2003, the original roof system was severely deteriorated resulting in extensive and prolonged water ingress into the building. This ingress resulted in damage to approximately 20% of the roof rafters and associated tongue and groove wood decking. At the time of installing a replacement (temporary) roof system in circa 2003, deteriorated rafters and decking were replaced. The replacement and original systems appear to be in good condition and of an adequate size and spacing to support the installation of a more permanent roof system including a slate system as installed at the time of building construction.

1.2.2 Code Compliance

Foundations

Loads to be supported by the foundation consist of dead loads and live loads. Assuming a change in occupancy from Group E (Education) to Group B (General Business/Office), the live loads to be supported are comparable. Dead loads in the renovated building are likely to be equal to or less than dead loads in the original building, as interior finish materials and other materials used in modern construction are typically lighter than the materials used in 1912 (e.g. drywall on light gauge metal stud framing versus lath and plaster on wood or masonry partitions; suspended acoustical ceilings versus plaster ceilings on lath, carpet or vinyl composition tile versus wood flooring or quarry tile, etc.).

Based on the above, it is our opinion that the foundation system will not require upgrade or reinforcement for the building to be put back in service in a Group B occupancy.

Lowest Floor Level

The slab-on-grade floor system appeared to meet the requirements of the presently enforced structural code relative to Group B occupancy.

Upper Floor Levels

Loads to be supported by the first and second floor decks consist of dead loads, consisting of the weight of building materials supporting the floor decks themselves, and live loads, consisting of code stipulated loads corresponding to the use of the building (the Occupancy Classification).

The existing first and second floor decks consist of 6 1/2" concrete flat slabs spanning in general eight feet (8') between concrete encased steel girders and joists. The main framing girders at the central core of the building were partially visible. Concrete encased joists were not visible. Reinforced concrete design was in it's infancy at the time of construction of this building, and standards for reinforced concrete design were not in use. The reinforced concrete systems being used were proprietary to the contractor installing the system. In the absence of any documentation on this system, destructive investigation would be required to determine the material properties used in the floor deck construction, which would then allow for a detailed calculation of the load carrying capacity.

In the absence of documentation on the existing floor framing systems and deck construction, the best indication of the adequacy of the floor systems is the condition of the existing floor decks after almost 100 years of use. Our visual condition assessment revealed no evidence of differential movement.

Design live loads used at the time of construction are not available, but it is apparent from the performance of the floor systems that the floors were adequately designed to support the required loads of Group E occupancy. Group B design live loads are comparable to Group E occupancy. Final determination of the adequacy of the floor systems to support the live loads to be imposed by the renovated building use will depend on the design lay-out of the renovated building. There will likely be some framing modifications necessary, as floor decks are supported in some areas by load bearing masonry walls which may not be in a desired location. Wholesale floor deck replacement due to live load carrying capacity is not expected.

Design dead loads in the renovated building are likely to be equal to or less than dead loads in the original building. Interior finish materials and other materials used in modern construction are typically lighter than the materials used in the early 1900's (e.g. drywall on light gauge metal stud framing versus lath and plaster on wood or masonry partitions; suspended acoustical ceilings versus plaster ceilings on lath, carpet or vinyl composition tile versus wood flooring or quarry tile, etc.). Floor deck replacement due to dead load carrying capacity is not expected to be required.

Superstructure - Lateral Load Resisting Systems (Wind and Seismic)

The lateral load resisting system appeared to consist of interior and exterior masonry shear walls, concrete floor diaphragms, and a wood diaphragm hip roof. The lateral load system has performed adequately since the building was constructed in 1912. We found no evidence of building racking or lateral movement.

Seismic Design Requirements

It is anticipated that the building will be renovated for use as a Group B occupancy building (general business/office). The seismic hazard exposure group for Group B Occupancy is Group II. The building is currently classified as Group E occupancy, with a seismic hazard exposure Group I (reference BOCA Table 1610.1.5). Section 1610.1.2. of the BOCA code presently enforced by the District of Columbia requires that an existing building be made to conform to the seismic requirements of a new building where the change in occupancy results in a higher seismic hazard exposure group. As this change in occupancy would result in a lower seismic hazard exposure group, it is not expected that it will be necessary to upgrade the building for seismic design requirements. Final determination will be made by the Code Enforcement Officer when the renovation plans are submitted for approval.

Should it be determined that seismic retrofit is required, the Washington D.C. area location has an effective peak acceleration coefficient (Av) < 0.05 (BOCA Figure 1610.1.3 (1). BOCA 1610.1 requires that buildings in this category are required to comply only with the requirements of 1610.3.6.1 for Seismic Performance Category A, and exempts the building from a full seismic analysis. These requirements relate to the attachment and anchorage of floor and roof diaphragms to masonry and concrete shear walls. The building's main windforce-resisting system shall be deemed to be the seismic-resisting system.

Windforce Resisting System

Loads to be supported by the first and second floor decks consist of dead loads, consisting of the weight of building materials supporting including the floor decks themselves, and live loads, consisting of code stipulated loads corresponding to the use of the building (the Occupancy Classification).

The existing first and second floor decks consist of 6 1/2" concrete flat slabs spanning in general eight feet (8') between concrete encased steel girders and joists. The main framing girders at the central core of the building were partially visible. Concrete encased joists were not visible and standards for reinforced concrete design were not in use at the time of original construction. The reinforced concrete systems being used were proprietary to the contractor installing the system. In the absence of any documentation on this system, destructive investigation would be required to determine the material properties used in the floor deck construction, which would then allow for a detailed calculation of the load carrying capacity.

In the absence of documentation on the existing floor framing systems and deck construction, the best indication of the adequacy of the floor systems is the condition of the existing floor decks after almost 100 years of use. Our visual condition assessment revealed no evidence of differential movement.

Design live loads used at the time of construction are not available, but it is apparent from the performance of the floor systems that the floors were adequately designed to support the required loads of Group E occupancy. Group B design live loads are comparable to Group E occupancy. Final determination of the adequacy of the floor systems to support the live loads to be imposed in the renovated building use will depend on the design lay-out of the renovated building. There will likely be some framing modifications necessary, as floor decks are supported in some areas by load bearing masonry walls which may not be in a desired location. Wholesale floor deck replacement due to live load carrying capacity is not expected.

Design dead loads in the renovated building are likely to be equal to or less than dead loads in the original building. Interior finish materials and other materials used in modern construction are typically lighter than the materials used in the early 1900's. Floor deck replacement due to dead load carrying capacity is not expected to be required.

Stairs

Due to condition concerns, stairs should be replaced.

Internal Walls

Internal walls appeared to meet the requirements of the presently enforced District of Columbia structural code relative to Group B occupancy.

Ceilings

Ceilings appeared to meet the requirements of the presently enforced District of Columbia structural code relative to Group B occupancy.

Exterior Wall Systems

Exterior walls appeared to meet the requirements of the presently enforced District of Columbia structural code relative to Group B occupancy.

Roof Structure

The roof structure is in good condition and permissible for a three story building of this size in a Group B occupancy.

1.3 Projected Capital Expenditures

Required:

1. We recommend that the deteriorated stair systems be replaced. Our opinion of cost to replace the stairs is $75,900 ($115 per square foot) in 2008. This opinion of cost includes a allowance of $15,000 for the retention of a District of Columbia registered structural engineer to design and specify the replacement system, and assumes for removal of the existing stair and railing assemblies, retention of the intermediate landings, and the installation of code compliant high quality commercial grade steel pan stair assemblies with cast-in-place concrete treads.

2. Although in presently acceptable condition, we recommend that funds be allocated for tuckpointing of the exterior wall system. Our opinion of cost to tuckpoint approximately 10% of the exterior wall system is $20,500 ($25 per square foot) in 2012.

Appendix A

Ten Year Capital Expenditure Forecast

FAITHFUL GOULD

TEN YEAR CAPITAL EXPENDITURE FORECAST - STRUCTURAL SYSTEMS
Alexandria Crummell School
1900 Gallaudet Street, NE
Washington, D.C.

Component No.	Component	Estimated Useful Life or Replacement Cycle (Yrs)	Remaining Useful Life (Yrs)	Quantity	Unit of Measurement	Unit Cost	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	Required	Recommended
						Year	1	2	3	4	5	6	7	8	9	10		
Structural Systems																		
Required																		
1	Replace Stairs	50	0	660	SF	$115.00	$75,900										$75,900	
2	Repair Exterior Load-Bearing Brick Wall	30	4	820	SF	$25.00					$20,500						$20,500	
Recommended																		
No Recommended Expenditure																		
					Required Cost (Present Worth)		$75,900	$0	$0	$0	$20,500	$0	$0	$0	$0	$0	$96,400	$0
					Cost (Inflated @ 4% Per Yr.)			$0	$0	$0	$23,982	$0	$0	$0	$0	$0		

Appendix B
Photographs

FAITHFUL GOULD

Photograph Number 1

Overview of elevated concrete floor system showing flat panel system supported on concrete encased steel joists. System is in generally good condition

Photograph Number 2

Flat panel elevated floor system showing concrete encased steel joist bearing onto perimeter load-bearing brick wall (A). Note also support provided by interior load-bearing brick wall (B).

Photograph Number 3

Support to elevated floor system at central core

Photograph Number 4

Connection of floor framing as seen at core area of first floor

Photograph Number 5

Steel girder provided at the attic space bearing on to an interior load-bearing brick wall

Photograph Number 6

Bolted connection between steel column and girder at central core. Note corrosion appears surface in nature and should not affect the capacity of the system

Photograph Number 7

Typical column at central core in good condition

Photograph Number 8

Typical load-bearing brick wall at interior of building

Photograph Number 9

Floor system bearing on to interior brick wall

Photograph Number 10

Overview of one of two sets of stairs. Stairs are in poor condition and will require near-term replacement

Photograph Number 11

Underside of typical stair section. Note areas of surface and sectional corrosion

Photograph Number 12

Wood floor joists as seen from attic space. Floor joists are in good condition. Note steel girders providing upper span support of the roof system (A).

Photograph Number 13

Front (south) elevation of building as seen from Gallaudet Street. The exterior wall system is in generally good structural condition

Photograph Number 14

Rear (north) elevation as seen from District of Columbia Public Schools parking lot. The exterior wall system is in generally good structural condition

Photograph Number 15

West elevation as seen from District of Columbia Public Schools parking lot. The exterior wall system is in generally good structural condition

Photograph Number 16

East elevation as seen from District of Columbia Public Schools parking lot. The exterior wall system is in generally good structural condition

Photograph Number 17

Wood rafters, mid-span support and wood board roof deck at original portions of roof system. Roof system is in generally good condition

Photograph Number 18

Original and replacement roof areas as seen from second floor. Roof system is in generally good condition

Photograph Number 19

Original and replacement roof decking systems in good condition

Photograph Number 20

Replacement roof decking (sheathing) in good condition. Note sistered roof joists

Photograph Number 21

Lateral support provided at base of roof rafters

Photograph Number 22

Connection between lateral rafter bracing and steel girder

Photograph Number 23

Mid-span support at hip roof system

Photograph Number 24

Surface corrosion at steel column

Photograph Number 25

Sectional corrosion at tread to riser connection at stairs. Stairs should be replaced near-term

Photograph Number 26

Structural failure at stairs. Stairs should be replaced near-term

Photograph Number 27

Widespread corrosion and failure of steel studs, steel mesh and plaster cover at non load-bearing partition wall system

Photograph Number 28

Failure of steel ceiling system above second floor

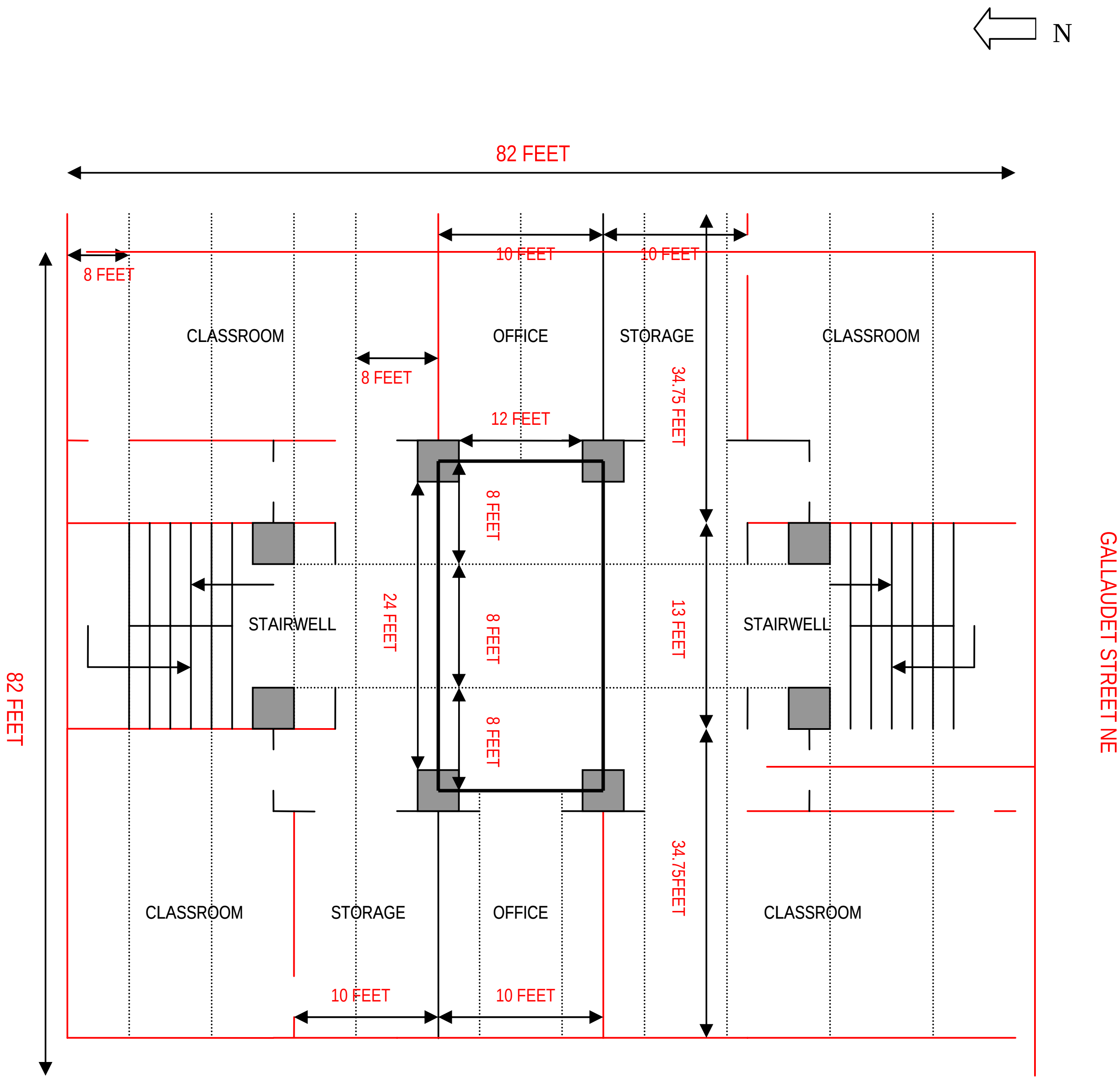
Photograph Number 29

Failure of steel ceiling system above second floor

Photograph Number 30

Failure of steel ceiling system above second floor

Appendix C
Floor Plan



= 15" LOAD BEARING BRICK WALL

= CONCRETE ENCASED STEEL JOISTS SPACED AT 8' ON-CENTER

= STEEL COLUMNS

= STEEL GIRDERS

PROJECT NO: 55357-09
DRAWN BY: R. NORTH
ISSUE DATE: 04.25.08
SHEET TITLE: ALEXANDER CRUMMELL SCHOOL STRUCTURAL LAYOUT
DRAWING NO: S-1

Appendix D
Resumes

FAITHFUL GOULD

Benjamin Dutton, FFB, MCIOB, MRICS

Director, Facility Condition Assessment

Benjamin Dutton has over ten years of experience in Facility Assessment, working in all sectors of the industry, from multi-family residential and ecclesiastical facilities to airports and resorts. He has been employed by property developers and consulting firms, and previously founded a multi-office facility assessment corporation. Benjamin has been working with Faithful+Gould since 2005, and is spearheading the expansion of the company's already successful Facility Assessment sector.

Projects Benjamin has completed include Facility Assessment and expenditure forecasting for the U.S. Senate House Office Buildings in Washington, DC, assessment, capital planning and maintenance evaluation for Washington Dulles International Airport and Ronald Reagan National Airport, maintenance evaluation and asset inventory for the University of Virginia and American University, facility assessment of a 42-building school facility, pre-acquisition due diligence surveys for a 19-building industrial portfolio in the Pacific Northwest, and construction monitoring and management of various residential and adult living centers.

SELECTED PROJECT EXPERIENCE

- Washington Dulles International Airport, Dulles, VA
- Ronald Reagan Washington National Airport, Arlington, VA
- George Washington University Acquisition Surveys, Washington, DC
- Grace Episcopal High School, Alexandria, VA
- American University, Washington, DC
- University of Virginia, Charlottesville, VA
- Our Lady of the Blessed Shroud, WI and IL
- Pencader Industrial Portfolio, NJ and NY
- Rams Horn Resort, Greenwood, CO
- State Plaza Hotel, Washington, DC
- Edge Lofts Apartment, Portland, OR
- Table Rock Hotel, Laguna Beach, CA
- Chown Pella Apartment, Portland, OR
- River Island Office Estates, Eugene, OR

Education:
Bachelor of Science, Building Surveying, 2000

Certifications/Affiliations:
Professional Member, Royal Institution of Chartered Surveyors

Professional Member, Chartered Institute of Building

Fellow, Faculty of Building

Member, Society for the Protection of Ancient Buildings

Years of Experience: 10+

- The Henry Apartments, Portland, OR
- The Yachtsman Resort, Myrtle Beach, SC
- Colony Woods Apartments, Seattle, WA
- Logistics A and B Industrial Complex, Fort Lauderdale, FL
- Newberry Plaza Apartments, Chicago, IL
- Edgewater Beach Hotel, Chicago, IL
- Carroll Avenue Apartments, Cleveland, OH
- Ravinia Lofts Apartments, Chicago, IL
- Worldgate Office Complex, Herndon, VA
- Exploration V Office Complex, Columbia, MD
- Clock Towers Apartments, Lancaster, PA
- Alameda Towers Apartments, Kansas City, MO
- Ground Round Restaurant Portfolio, Various Locations

David Elwyn, P.E.
Senior Consultant

David Elwyn has over 26 years experience in the construction industry. He is experienced in all aspects of construction ranging from design to cost and project management, claims management and dispute resolution, contract administration and close-out.

Mr. Elwyn's professional experience includes 19 years with a leading architectural, engineering, and construction services firm, during which time he progressed from construction administrator to firm president and managing partner. He has developed and implemented computer applications for construction administration and facilities evaluation, established quality assurance procedures for design and document review, investigated and negotiated design defect claims and contract disputes, and developed project execution checklists and procedures.

He is an experienced structural engineer, having served as lead design engineer on numerous public and private new construction and renovation projects, with particular expertise in masonry design and restoration, and structural forensic investigation and analysis.

Mr. Elwyn's project management experience includes serving as owner's project representative, leading full service architectural and engineering design teams from project inception and contract negotiation through construction close-out, serving as consulting engineer team leader providing engineering services to major architectural design firms, structuring and executing design/manage performance contracts, and providing construction management services as agent of the Owner.

Representative Project Experience

- **Appleridge at Bethany Village, Horseheads, New York**. Principal-in-charge for the architect/engineer for 112-unit combination independent living and assistive living apartment complex located in Horseheads, New York. The completed facility includes apartments, shops, a commercial kitchen and dining facilities, a recreation/fitness center, activity rooms, and multipurpose rooms. Appleridge was the largest HUD-insured loan processed through the Buffalo, NY HUD office in 2000.
- **Wickwire Building Deconstruction, Cortland, NY**. Assisted the building Owner in the deconstruction and salvage of a 75,000 sf circa 1900 industrial building.

Education:
Clarkson University, Potsdam, New York. BSCE Suma Cum Laud – 1980.

Professional Licences:
Registered Professional Engineer: New York, 1989; New Jersey, 1988; Pennsylvania, 1993; Texas, 1986 (inactive).

Affiliations:
National Society of Professional Engineers (NSPE)

Presentations:
Construction Change Orders; Lorman Education, 2005 and 20006

Risk Management in Construction; Lorman Education, 2006

Energy Performance Contracting; Benefits, Problems, Solutions; White paper on performance contracting in New York public schools presented to members of the NYS legislature, 1997

Years of Experience: 26

Negotiated an agreement with a demolition and salvage contractor to offset the demolition and hazardous materials abatement costs with the salvage value of the building materials.

- **Tompkins County, Old County Jail Historic Reconstruction, Ithaca, New York**. Lead structural engineer for the $3.5M reconstruction of the old county jail to serve as a county office building. Project was selected for award for historic building renovation and reuse.

- **Frankfort Schuyler Central School District**. Principal-in-charge for the combined team of architect/engineer and construction manager for an $18.5M additions and alterations project. Work included a new high school gymnasium and locker rooms, middle school classroom addition, new high school/middle school kitchen and cafeteria, and expansion of the high school science classrooms. Alterations work included renovation of the original 1920's high school, enlargement of the library, and other interior alterations to the high school and two elementary schools. Site work included new tennis courts, a new maintenance/ storage building, new all weather track, and construction of new play fields.

- **Kendal at Ithaca, Ithaca, New York**. Project Manager and lead structural engineer for the consulting engineer to architect Ewing Cole Cherry Brott for a $20M retirement community which included a community center, resident health care facility, pool and recreation facilities, apartment building, and resident cottages.
- **McNeil Insurance Building, Cortland, New York**. Lead structural engineer for the conversion and expansion of a building, originally constructed as a commercial grocery facility, to house the main offices of the McNeil Insurance Company.

- **West Valley Central School District**. Principal in charge for the combined team of architect/engineer and construction manager for a $9.5M additions and alterations project. Work included a new high library addition, elementary classrooms addition, and new all weather track and football field. The project also incorporated energy conservation measures from a detailed comprehensive energy audit, using the resulting energy savings to offset bond payment costs. Project received a NYSERDA energy grant. Energy conservation measures included lighting, control systems, roofing replacement, window replacement, insulation, motor replacement with high efficiency motors, and HVAC system optimization work.

- **New Main Postal Handling Facility, Ithaca, New York**. Lead structural engineer for the new Ithaca area central USPS processing and distribution facility.
- **Lead structural design engineer** for numerous public education facility new construction, addition, and alteration projects including:
  - Riverhead, NY Central Schools, District wide Additions and Alterations
  - Fallsburg, NY Central Schools, Additions to District Buildings
  - Sayre, NJ Public Schools, Addition and Alterations to District Buildings
  - Hyde Park, NY Central Schools, Additions and Alterations
  - Ogdensburg, NY Central Schools, Additions to Ogdensburg Free Academy
  - Bridgeton, NJ Public Schools, Alterations to District Buildings
  - Honeoye Falls-Lima, NY Central Schools, New Middle School
  - South Orangetown, NY Central Schools, District wide Adds and Alterations
  - Monroe BOCES, NY Internal reconstruction of vocational education buildings
  - Greenwood Lake, NY Central Schools, Renovation of a bus garage to offices
- **Construction Administrator for the architect/engineer** for numerous public education facility new construction, addition, and alteration projects including:
  - Canton, NY Central Schools, District wide Additions and Alterations
  - Homer, NY Central Schools, Additions to District Buildings
  - Potsdam, NY Central Schools, Additions and Alterations
  - Lansing, NY Central Schools, Alterations to District Buildings
  - Norwood-Norfold, NY Central Schools, Additions and Alterations
  - Parishville-Hopkinton, NY Central Schools, Alterations
- **Honeoye Falls-Lima Central School District** . Principal in charge/Project manager for the combined team of architect/engineer and construction manager, acting on behalf of the school district as their Energy Services Company, for a $2.5M energy performance contract which included lighting, control systems, cogeneration, absorption cooling, ice storage, and roofing replacement.

- **Penfield Central School District** . Served as the Owner's Representative to assist in the evaluation of the Energy Service Contractor's (ESCO) performance under a Guaranteed Savings Contract. Resulted in additional annual payments to the school district from the ESCO.

- **Greenport, NY Union Free School District**. Performed a masonry condition assessment, recommended masonry restoration measures, developed budgets, performed detailed design, and provided construction administration services for a comprehensive masonry restoration project for this public school on the north fork of Long Island. Work included all facets of masonry restoration, including brick repointing and replacement, parapet repair, lintel repair or replacement, repair and/or replacement of copings and flashings, sealant replacement, waterproofing, and re-creation and replacement of the original architectural nautical theme precast panels.

- **Various Masonry and Exterior Envelope Condition Assessments**. Performed comprehensive exterior envelope studies, in many cases resulting in the subsequent design and construction oversight of corrective work, on numerous institutional facilities, including:
  - Monroe, NY BOCES
  - Lansing, NY Central School District
  - White Plains, NY City School District
  - William Floyd Union Free School District, Mastic Beach, NY
  - Wappingers Falls, NY Central School District
  - Hyde Park, NY Central School District
  - Ramapo, NY Central School District
  - Brentwood, NY Union Free School District
  - East Islip, NY Central School District
  - Teaneck, NJ Public Schools
  - Bridgeton, NJ Public Schools

Additional Experience

- **Central Engineering Division, Exxon Chemical Company.**. Project manager, cost engineer and schedule engineer on petrochemical plant new construction and revamp projects in New Jersey, Texas, Scotland and Saudi Arabia.