FACILITIES NEEDS
ASSESSMENT

STAMFORD PUBLIC SCHOOLS
888 Washington Boulevard
Stamford, Connecticut 06901
Domenick Tramontozzi

Facilities Needs Assessment

of

TOQUAM MAGNET ELEMENTARY SCHOOL
123 Ridgewood Avenue
Stamford, Connecticut 06907

PREPARED BY:

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EMG Project #: 88166.09R-005.017
Date of Report: August 29, 2009
On site Date: April 17, 20-21, 2009

EMG

DUE DILIGENCE FOR THE LIFE CYCLE OF REAL ESTATE
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Replacement Reserves Report
Elementary Schools / Toquam Magnet Elementary School
8/29/2009

Year	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Inflation	3.0%	4.0%	4.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%

Report Section	ID	Cost Description	Lifespan (EUL)	Observed Age (EAge)	Remaining Life (RUL)	Quantity	Unit	Unit Cost *	Subtotal	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	Deficiency Repair Estimate
1.2	4388	HVAC system study	0	0	0	1	EA	$9,135.00	$9,135	$9,135										**$9,135**
1.2	4045	Civil Engineer Drainage study	0	0	0	1	EA	$6,930.00	$6,930	$6,930										**$6,930**
1.2	4014	Measured ADA Study of Property	0	0	0	1	EA	$6,930.00	$6,930	$6,930										**$6,930**
3.1	3996	ADA cane detection barrier rails	30	30	0	3	PR	$144.90	$435	$435										**$435**
3.1	4002	Replace school door knobs with ADA lever	20	20	0	126	EA	$682.92	$86,048	$86,048										**$86,048**
3.1	4009	Add ADA handrail extensions to existing metal handrails	30	30	0	96	EA	$441.00	$42,336	$42,336										**$42,336**
3.1	4025	ADA, Renovate restroom for full compliance	20	20	0	8	EA	$15,120.00	$120,960	$120,960										**$120,960**
3.1	5031	Add new 3-story hydraulic elevator and enclosure	30	29	1	1	EA	$130,668.30	$130,668		$130,668									**$130,668**
3.1	4024	ADA Directional signage	0	0	0	8	EA	$157.50	$1,260	$1,260										**$1,260**
3.1	4016	ADA Drinking Fountain Cup Dispenser	15	15	0	2	EA	$69.30	$139	$139										**$139**
3.1	4020	ADA, paint accessible parking space	5	5	0	1	EA	$207.90	$208	$208					$208					**$416**
3.1	4861	ADA, paint van-accessible space with signage	5	5	0	1	EA	$277.20	$277	$277					$277					**$554**
3.1	4021	ADA, replace H/C access ramp, 3' wide, railings both sides,including demo	25	25	0	10	LF	$611.72	$6,117	$6,117										**$6,117**
3.3	4192	Industrial Hygenist for mold remediation	0	0	0	1	EA	$1,827.00	$1,827	$1,827										**$1,827**
5.2	4475	Concrete stairs on grade	40	39	1	500	SF	$76.86	$38,430		$38,430									**$38,430**
5.2	4390	Seal Coat and stripe asphalt, no repairs	5	4	1	4	10000 SF	$4,315.53	$17,262		$17,262					$17,262				**$34,524**
5.2	4404	Replace asphalt curbs	10	9	1	400	LF	$14.63	$5,851		$5,851									**$5,851**
5.2	4403	Replace concrete curbs	25	24	1	600	LF	$38.12	$22,869		$22,869									**$22,869**
5.2	4398	Remove and replace asphalt path 4' wide	15	14	1	800	LF	$19.15	$15,322		$15,322									**$15,322**
5.2	4391	Remove & replace 4' wide concrete sidewalk	25	25	0	600	LF	$40.65	$24,389	$24,389										**$24,389**
5.2	4389	Cut & Patch asphalt	10	10	0	30450	SF	$3.86	$117,403	$117,403										**$117,403**
5.2	4394	Remove & replace 4' wide concrete sidewalk	25	20	5	900	LF	$40.65	$36,583						$36,583					**$36,583**
5.2	4400	Remove and replace asphalt path 4' wide	15	6	9	1200	LF	$19.15	$22,982										$22,982	**$22,982**
5.2	4402	Replace cast-in-place concrete stairs, no rails,including demo	25	23	2	175	LF Nosing	$38.28	$6,699			$6,699								**$6,699**
5.5	4406	High pressure sodium fixture 250 W	20	20	0	10	EA	$1,239.56	$12,396	$12,396										**$12,396**
5.5	4203	Replace chain link fence, 6-foot high	20	20	0	225	LF	$37.31	$8,394	$8,394										**$8,394**
5.5	4407	Replace chain link fence, 8-foot high	20	15	5	300	LF	$64.58	$19,373						$19,373					**$19,373**
5.5	4405	Entry sign replacement allowance	25	25	0	1	EA	$6,300.00	$6,300	$6,300										**$6,300**
5.5	4409	Replace basketball backstop, 3' wide 12' high	25	23	2	2	EA	$6,122.09	$12,244			$12,244								**$12,244**
5.5	4408	Re-grading and establishment of ground cover at playing field	25	24	1	8.5	1000 SF	$3,222.80	$27,394		$27,394									**$27,394**
5.5	6787	Install underground irrigation system	0	0	0	8500	SF	$1.26	$10,710	$10,710										**$10,710**
6.1	4047	Epoxy Injection at basement floor slab cracks	0	0	0	375	LF	$54.27	$20,351	$20,351										**$20,351**
6.1	4874	Toquam subsurface drainage improvements	30	30	0	1	EA	$60,480.00	$60,480	$60,480										**$60,480**
6.1	4873	Toquam subsurface drainage improvements	30	30	0	1	EA	$60,480.00	$60,480	$60,480										**$60,480**

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6.3	4549	Caulking, polyurethane,1/4"x1/4", remove and replace	15	15	0	800	LF	$4.84	$3,871	$3,871										**$3,871**
6.3	4547	Scrape and paint exterior metal	7	7	0	1000	SF	$1.97	$1,966	$1,966							$1,966			**$3,931**
6.3	12052	Stamford Roof Assessment - BUR Roof Replacement	20	18	2	356	SQ	$1,666.66	$593,331			$593,331								**$593,331**
6.3	12050	Stamford Roof Assessment - EPDM Replacement	20	13	7	120	SQ	$1,595.75	$191,489								$191,489			**$191,489**
6.3	12051	Stamford Roof Assessment - EPDM Replacement	20	18	2	52	SQ	$1,595.75	$82,979			$82,979								**$82,979**
6.3	12049	Stamford Roof Assessment Roof Repair Recommendations	0	0	0	1	EA	$6,737.73	$6,738	$6,738										**$6,738**
6.3	4083	Built-up roofing minor membrane repairs - (2% of roof area)	0	10	0	4	SQ	$571.22	$2,285	$2,285										**$2,285**
6.3	4548	Curved plexi-glas panels, replace	15	15	0	150	SF	$43.66	$6,549	$6,549										**$6,549**
6.3	12026	Capital Plan - Add fencing to protect roof access by public	15	14	1	1	EA	$15,120.00	$15,120		$15,120									**$15,120**
6.4	4088	Point brick wall first floor	10	10	0	65	CSF	$1,194.48	$77,641	$77,641										**$77,641**
6.4	4091	Point brick wall upper floor	10	10	0	60	CSF	$1,301.58	$78,095	$78,095										**$78,095**
6.4	4132	Caulking, expansion joints,1"x1/2", remove and replace	15	10	5	320	LF	$7.95	$2,544						$2,544					**$2,544**
6.4	4090	Waterproof brick wall upper floor	10	10	0	15	CSF	$687.33	$10,310	$10,310										**$10,310**
6.4	4136	Replace curtain wall system with double glazing	30	27	3	130	SF	$94.19	$12,244				$12,244							**$12,244**
6.4	4093	Replace curtain wall system with double glazing	30	27	3	11475	SF	$94.19	$1,080,773				$1,080,773							**$1,080,773**
6.5	12027	Capital Plan - Add anti-skid treads to stairs to Dolan walkway	15	14	1	1	EA	$5,040.00	$5,040		$5,040									**$5,040**
6.5	4591	Replace steel guardrail	10	10	0	100	LF	$59.72	$5,972	$5,972										**$5,972**
6.6	12025	Replace 3' by 7' metal jamb and door	35	33	2	10	EA	$1,434.76	$14,348			$14,348								**$14,348**
6.7	4892	Replace damaged concrete	30	30	0	936	SY	$450.99	$422,128	$422,128										**$422,128**
6.8	4153	Paint interior walls, drywall	5	2	3	30000	SF	$1.06	$31,752				$31,752					$31,752		**$63,504**
6.8	6790	Capital Plan - Install Sound Attenuation at walls/ceilings	0	0	0	15	CSF	$882.00	$13,230	$13,230										**$13,230**
6.8	4154	Replace Vinyl tile	18	18	0	1500	SY	$81.90	$122,850	$122,850										**$122,850**
6.8	4148	Replace Vinyl tile	18	10	8	430	SY	$81.90	$35,217									$35,217		**$35,217**
6.8	4147	Sand and refinish hardwood floor	10	4	6	3883	SF	$6.93	$26,909							$26,909				**$26,909**
6.8	4145	Replace carpet - standard commercial	8	3	5	325	SY	$63.23	$20,549						$20,549					**$20,549**
6.8	4158	Replace acoustical ceiling tile system, fire rated,including demo	20	17	3	113	CSF	$627.48	$70,905				$70,905							**$70,905**
6.8	12032	Remove and replace institutional cabinet & Counter up to 5'	30	28	2	50	EA	$2,252.88	$112,644			$112,644								**$112,644**
6.8	4151	Asbestos floor tile and mastic removal	0	0	0	13500	SF	$3.15	$42,525	$42,525										**$42,525**
6.8	6798	Stamford - Lead Abatement Allowance	0	0	0	20000	SF	$1.26	$25,200	$25,200										**$25,200**
7.1	4921	Scrape and paint exterior metal	7	6	1	1000	SF	$1.97	$1,966		$1,966							$1,966		**$3,931**
7.1	4925	Toquam HVAC System renovation	20	19	1	92000	SF	$6.84	$629,446		$629,446									**$629,446**
7.1	4447	Replace air handler 4,000 to 8,000 CFM	20	19	1	3900	CFM	$3.78	$14,742		$14,742									**$14,742**
7.1	4451	Replace air handler 1,500 to 2,500 CFM	20	19	1	1500	CFM	$2.23	$3,345		$3,345									**$3,345**
7.1	4443	Replace air handler 4,000 to 8,000 CFM	20	19	1	5400	CFM	$3.78	$20,412		$20,412									**$20,412**
7.1	4449	Replace air handler 1,500 to 2,500 CFM	20	19	1	1650	CFM	$2.23	$3,680		$3,680									**$3,680**
7.1	4421	Replace fan coil unit 5 ton	15	13	2	1	EA	$2,506.14	$2,506			$2,506								**$2,506**
7.1	4445	Replace air handler 2500-3000 CFM	15	14	1	1	EA	$4,037.04	$4,037		$4,037									**$4,037**

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7.1	4444	Replace air handler 4,000 to 8,000 CFM	20	19	1	4000	CFM	$3.78	$15,120		$15,120									**$15,120**
7.1	4454	Replace air handler 1,500 to 2,500 CFM	20	19	1	1600	CFM	$2.23	$3,568		$3,568									**$3,568**
7.1	4455	Replace air handler 2500-3000 CFM	15	14	1	1	EA	$4,037.04	$4,037		$4,037									**$4,037**
7.1	4457	Replace air handler 2500-3000 CFM	15	14	1	1	EA	$4,037.04	$4,037		$4,037									**$4,037**
7.1	4420	Replace fan coil unit 3 ton	15	13	2	1	EA	$1,907.64	$1,908			$1,908								**$1,908**
7.1	4448	Replace air handler 1,500 to 2,500 CFM	20	19	1	1650	CFM	$2.23	$3,680		$3,680									**$3,680**
7.1	4453	Replace air handler 2500-3000 CFM	15	14	1	1	EA	$4,037.04	$4,037		$4,037									**$4,037**
7.1	4452	Replace air handler 1,500 to 2,500 CFM	20	19	1	2100	CFM	$2.23	$4,683		$4,683									**$4,683**
7.1	4450	Replace air handler 1,500 to 2,500 CFM	20	19	1	1500	CFM	$2.23	$3,345		$3,345									**$3,345**
7.1	4456	Replace air handler 2500-3000 CFM	15	14	1	1	EA	$4,037.04	$4,037		$4,037									**$4,037**
7.1	4415	Replace fan coil unit 5 ton	15	10	5	35	EA	$2,506.14	$87,715						$87,715					**$87,715**
7.1	8661	Exhaust Fan 375 CFM	10	9	1	10	EA	$882.63	$8,826		$8,826									**$8,826**
7.1	4412	Circulation Pump 5 HP	20	13	7	5	EA	$6,424.74	$32,124								$32,124			**$32,124**
7.1	4414	Replace baseboard radiator finned tube 3/4" copper	35	30	5	1200	LF	$38.15	$45,783						$45,783					**$45,783**
7.1	4419	Replace Roof-Mounted Condenser 5-ton	15	13	2	1	EA	$6,391.98	$6,392			$6,392								**$6,392**
7.1	4417	Replace Roof-Mounted Condenser 3-ton	15	13	2	1	EA	$3,814.02	$3,814			$3,814								**$3,814**
7.1	4411	Replace rooftop unit	15	12	3	1 @ 4	Ton	$2,179.80	$8,719				$8,719							**$8,719**
7.1	12036	Makeup Air Unit, Gas-Fired, Indoor Suspension, 5000 CFM, 400-420 MBH	15	14	1	1	EA	$16,026.22	$16,026		$16,026									**$16,026**
7.1	4478	Replace air-cooled liquid chiller 101.5-ton	15	10	5	2	EA	$157,374.00	$314,748						$314,748					**$314,748**
7.2	4441	Replace flush valve & water closet	25	23	2	30	EA	$1,123.59	$33,708			$33,708								**$33,708**
7.2	4440	Replace urinal	35	30	5	5	EA	$1,277.51	$6,388						$6,388					**$6,388**
7.2	4442	Replace china wall hung lavatory and faucet	35	33	2	24	EA	$807.16	$19,372			$19,372								**$19,372**
7.2	4439	Replace drinking fountain	10	7	3	8	EA	$1,505.70	$12,046				$12,046							**$12,046**
7.2	4437	Remove Asbestos insultion from pipe up to 4-inch dia	0	0	0	500	LF	$12.60	$6,300	$6,300										**$6,300**
7.4	12039	Capital Plan -Add Electrical Distribution for Classroom and Office Technology	20	19	1	30000	SF	$3.26	$97,902		$97,902									**$97,902**
7.4	12037	Capital Plan - Public Address System Upgrade	0	0	0	66085	SF	$0.95	$62,450	$62,450										**$62,450**
7.4	4481	Diesel Generator, 45 KW Replace	25	24	1	1	EA	$35,407.26	$35,407		$35,407									**$35,407**
7.5	4432	Replace elevator hydraulic system, 2000 lb capacity	25	24	1	1	EA	$22,680.00	$22,680		$22,680									**$22,680**
7.5	4433	Modernize hydraulic elevator controller and signals, to 3 stories	25	24	1	1	EA	$77,616.00	$77,616		$77,616									**$77,616**
7.5	4431	Install new wheelchair lift 3 'to 8'	20	20	0	1	EA	$18,078.30	$18,078	$18,078										**$18,078**
7.6	4429	Install Fire Sprinklers	30	30	0	5500	SF	$4.98	$27,374	$27,374										**$27,374**
7.6	12043	Capital Plan - Communications & Security Replace emergency lighting and exit signage	15	14	1	66085	SF	$0.63	$41,634		$41,634									**$41,634**
7.6	4430	Fire alarm panel addressable, with voice	15	6	9	1	EA	$15,264.77	$15,265										$15,265	**$15,265**
8.1	4160	Paint interior walls, drywall	5	2	3	25000	SF	$1.06	$26,460				$26,460					$26,460		**$52,920**
8.1	4156	Replace Vinyl tile	18	18	0	3500	SY	$81.90	$286,650	$286,650										**$286,650**
8.1	4159	Replace acoustical ceiling tile system, fire rated,including demo	20	17	3	95	CSF	$627.48	$59,611				$59,611							**$59,611**
8.1	6789	Horizontal Blinds aluminum 1" slats	7	6	1	7500	SF	$6.49	$48,668		$48,668							$48,668		**$97,335**

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8.1	4152	Asbestos floor tile and mastic removal	0	0	0	31500	SF	$3.15	$99,225	$99,225										**$99,225**
9.0	4195	Remove and replace plywood siding	0	0	0	4200	SF	$4.94	$20,745	$20,745										**$20,745**
9.0	4196	Paint existing wood siding, one coat, spray with medium prep and clean up	10	9	1	4200	SF	$1.56	$6,562		$6,562									**$6,562**
9.0	4194	Single Ply EPDM Roofing system with Ballast 60 mills including demo	20	15	5	4.8	SQ	$747.10	$3,586						$3,586					**$3,586**
9.0	4872	Single Ply EPDM, minor repairs - (2% of roof area)	0	13	0	3.5	Patch	$409.12	$1,432	$1,432										**$1,432**
Totals, Unescalated										**$1,945,117**	**$1,357,450**	**$889,944**	**$1,302,510**	**$0**	**$537,753**	**$44,171**	**$225,579**	**$144,062**	**$38,247**	**$6,484,833**
Soft Costs:																				
		Architectural/Consultant Fees (10.0%)								**$194,512**	**$135,745**	**$88,994**	**$130,251**	**$0**	**$53,775**	**$4,417**	**$22,558**	**$14,406**	**$3,825**	**$648,483**
		General Requirements (Bonds, Insurance, GC/CM Mark-up) (10.0%)								**$194,512**	**$135,745**	**$88,994**	**$130,251**	**$0**	**$53,775**	**$4,417**	**$22,558**	**$14,406**	**$3,825**	**$648,483**
		Prevailing Wage/Labor Compliance (5.0%)								**$97,256**	**$67,872**	**$44,497**	**$65,125**	**$0**	**$26,888**	**$2,209**	**$11,279**	**$7,203**	**$1,912**	**$324,242**
		Contingency (5.0%)								**$97,256**	**$67,872**	**$44,497**	**$65,125**	**$0**	**$26,888**	**$2,209**	**$11,279**	**$7,203**	**$1,912**	**$324,242**
Location Factor (1.12)										**$233,414**	**$162,894**	**$106,793**	**$156,301**	**$0**	**$64,530**	**$5,301**	**$27,069**	**$17,287**	**$4,590**	**$778,180**
Totals, Escalated (see inflation table above)										**$2,762,066**	**$1,985,406**	**$1,353,698**	**$2,060,503**	**$0**	**$937,894**	**$80,891**	**$433,758**	**$290,863**	**$81,083**	**$9,986,161**

* Markup has been included in unit costs.

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CERTIFICATION

EMG has completed a Comprehensive Facilities Needs Assessment of the subject property, Toquam Magnet Elementary School, located at 123 Ridgewood Avenue, in Fairfield County, Connecticut.

The conclusions and recommendations presented in this report are based on the brief review of the plans and records made available to our Project Manager during the site visit, interviews of available Physical Plant personnel familiar with the Property, appropriate inquiry of municipal authorities, our Project Manager's walk-through observations during the site visit, and our experience with similar properties.

No testing, exploratory probing, dismantling or operating of equipment or in depth studies were performed unless specifically required under Section 2 of this report. This evaluation did not include engineering calculations to determine the adequacy of the Property's original design or existing systems. Although walk-through observations were performed, not all areas were observed (See Section 4.2 for areas observed). There may be defects in the Property, which were in areas not observed or readily accessible, may not have been visible, or were not disclosed by the Physical Plant personnel when questioned. The report describes property conditions at the time that the observations and research were conducted.

This report has been prepared on behalf of and exclusively for the use of City of Stamford, Connecticut Public Schools for the purpose stated within Section 2.0 of this report. The report, or any excerpt thereof, shall not be used by any party other than City of Stamford, Connecticut Public Schools or for any other purpose than that specifically stated in our agreement or within Section 2.0 of this report without the express written consent of EMG.

Any reuse or distribution of this report without such consent shall be at City of Stamford Public Schools and the recipient's sole risk, without liability to EMG.

Any questions regarding this report should be directed to Bill Champion at bchampion@emgcorp.com or at (800) 733-0660, Extension 6234.

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1. EXECUTIVE SUMMARY

1.1. SUMMARY OF FINDINGS

The property information is summarized in the table below. More detailed descriptions may be found in the various sections of the report and in the Appendices.

Property Information	
Address:	123 Ridgewood Avenue, Stamford, Fairfield County, Connecticut, 06907
Year constructed:	1967; renovations occurred in 1990. The modular building was added in 1995
Current owner of property:	City of Stamford
School occupying building:	Toquam Magnet Elementary School
Current usage of property:	Elementary School
Management Point of Contact:	City of Stamford Engineering, Domenic Tramontozzi and Robert Gerbert, Jr. 203.977.5534 phone 203.977.4137 fax
Site acreage:	7.76 acres
Gross floor area:	66,085 Square Feet
Number of buildings:	One building and one modular building
Number of stories:	3
Parking type and number of spaces:	122 spaces in open lots
Building construction:	Reinforced concrete piles at load-bearing column locations and cast-in-place concrete perimeter wall footings with concrete foundation walls. The upper floors are constructed of load-bearing concrete masonry unit (CMU) interior walls and perimeter steel columns. The roofs are constructed of metal decks supported by steel beams.
Bay Column Spacing:	Approximately 16.5 Feet
Interior vertical clearance:	Approximately 11.5 Feet
Roof construction:	Flat roofs with built-up membrane or single-ply membranes
Exterior Finishes:	Brick masonry veneer; the entrance elevations are clad with a metal-framed curtain wall system. The parapet spandrels and fascia panels are finished with butt jointed factory-finished metal panels

Property Information	
Heating and/or Air-conditioning:	Central heating system with two boilers; heated water supplies cabinet and baseboard radiant units. Cooling supplied by two rooftop air-cooled chillers, packaged rooftop units for the modular classrooms. Rooftop spilt system rooftop condenser for the offices and computer labs
Fire and Life/Safety:	Fire sprinklers, fire alarm system, security system, hydrants, smoke detectors, alarms, fire extinguishers. (No sprinklers in modular building)
Dates of visit:	April 17, 20-21, 2009
Point of Contact (POC):	Ms. Louise F. Spolowitz, Ph D. and Mr. David Borsey

Generally, the property appears to have been constructed within industry standards in force at the time of construction. The property appears to have been well maintained since it was first occupied and is in good overall condition.

According to City of Stamford Public Schools personnel, the property has had an active capital improvement expenditure program over the past years, primarily consisting of lighting upgrade to T8 ballast, replacement of 25 percent of the roof, installation of new chiller plants and new air handling units. Supporting documentation was not provided in support of these claims but some of the work is evident.

1.2. FOLLOW-UP RECOMMENDATIONS

The following issue requires additional study:

- The elevator cab interior and all equipment are not ADA compliant. The cab interior clear space is less than the required 51″ x 68″. The ADA service from floor to floor requires an ADA study to determine the best means for accessibility to all levels of the building. The cost of the follow-up evaluation is included in the Replacement Reserves Report.
- The HVAC system is reportedly highly inconsistent. Custodial staff reported that temperature control is inadequate in the building and that heating and cooling are at times required simultaneously maintaining a comfortable environment. It is recommended that an HVAC contractor evaluate the building for the potential reconfigure of the existing control system or to add increased zoning for better temperature control in the building. The cost of the follow-up evaluation is included in the Replacement Reserves Report.

- The foundations and footings can not be directly observed. There is water along the exterior foundation walls adjacent to the air shaft entering into the electrical room and electrical generator room. There is evidence of efflorescence, pooling water and moisture conditions on the interior concrete walls. The water intrusion occurs from the adjacent landscaping. The south foundation wall slopes moderately from east to west. In addition, water is also entering into the gymnasium and cafeteria caused by missing and brittle caulking along the courtyard wall base. Additional water intrusion may occur through the cracked and spalling pavement. The same condition exists along the north side courtyard staircase and the southeast corner of the courtyard. Water is entering through the stair slabs along the wall base. A Professional Engineer with specific expertise in waterproofing and drainage design, in this geographical area must be retained in conjunction with a qualified contractor to supervise, evaluate the site conditions and provide recommendations consistent with local regulatory and code requirements to perform the necessary repairs. Based upon the observed conditions of the interior and exterior walls; repairs may include excavation of the foundation, waterproofing, courtyard concrete replacement and wall base sealant. During the repair of the courtyard; the interior concrete walls should be repaired to seal all areas of water penetration. The estimated cost of this work is included in the Replacement Reserves Report. Additional costs may arise based upon the findings of the study; subsequent costs are not included in the report. The estimated cost of this work is included in the Replacement Reserves Report.
- The boiler room concrete floor slab is in fair to poor condition. Water is entering through the slab pipe penetrations and along the east perimeter walls. Currently there are two sump pumps within classrooms and additional sump pumps within the boiler room to remove water from below the concrete slab and adjacent to the walls on the east perimeter. A Civil Engineer must be retained to perform a drainage study by analyzing the existing condition, make recommendations and, if necessary, estimate the scope and cost of any required repairs. As part of the scope of work EMG recommends the following be performed in conjunction with the drainage study; a curtain drain is to be installed along the east building perimeter. The excavation of the foundation should occur with repairs and waterproofing. The interior areas of the floor slab and wall should be repaired with an epoxy crack injection or as directed by the Civil Engineer. The estimated cost to retain an engineer and repair the boiler room is included in the Replacement Reserves Report. Additional costs may arise based upon the findings the findings of the study; subsequent costs are not included in the report.

The following issues should be considered.

- Verify that any alterations, installations, or other improvements since the project was first constructed and occupied have been properly permitted and approved by municipal agencies.
- Verify that no defective materials or equipment are used at the property.

1.3. OPINIONS OF PROBABLE COST

The estimates for the repair and capital reserves items noted within this PCR are attached to the front of this report, following the cover page.

These estimates are based on invoices and/or bid documents provided by the Owner and/or facility, construction costs developed by construction resources such as *R.S. Means* and *Marshall & Swift,* EMG's experience with past costs for similar properties, city cost indexes, and assumptions regarding future economic conditions.

1.3.1. Methodology

Based upon our observations, research and judgment, along with consulting commonly accepted empirical Expected Useful Life (EUL) tables; EMG will render our opinion as to when a system or component will most probably necessitate replacement. Accurate historical replacement records provided by the facility manager are typically the best source for this data. Exposure to the weather elements, initial system quality and installation, extent of use, the quality and amount of preventive maintenance exercised are all factors that impact the effective age of a system or component. As a result, a system or component may have an effective age that is greater or less than its actual age. The Remaining Useful Life (RUL) of a component or system equals the EUL less its effective age.

In addition to determining the EUL and the RUL for each major prime system and building component, EMG will categorize each cited deficiency within one of the following five Priorities:

Priority 1: Currently Critical (Immediate)

Items in this category require immediate action and include corrective measures to:

- Return a building component to normal operation
- Stop accelerated deterioration
- Replace items that have reached or exceeded their useful service life
- Correct a cited safety hazard

Priority 2: Potentially Critical (Years 1-2)

Items in this category require action in the next 1-2 years and include corrective measures to:

- Return a building component to normal operation
- Stop rapid deterioration
- Correct potential life safety issues and/or code hazards
- Correct building components that are experiencing Intermittent operations

Priority 3: Necessary – Not Yet Critical (Years 3-5)

Items in this category require appropriate attention to preclude predictable deterioration, potential downtime, additional damage and higher costs to remediation if deferred further.

Priority 4: Recommended (Years 6-10)

Items in this category represent a sensible improvement to the existing conditions. These are not required for the most basic function of the facility; however, Priority 4 projects will improve overall usability and/or reduce long-term maintenance costs.

Priority 5: Recommended (Years 11+)

Items in this category represent anticipated required capital expenditures due to Estimated Useful Life (EUL) only. These systems are generally in good operational condition, but will require replacement due to the system(s) finite life expectancy.

In addition to identifying and prioritizing all of the observed deficiencies, EMG will also provide the physical conditions of building components. The physical condition is typically defined as being in one of four categories: Good, Fair, Poor and Not Applicable. For the purposes of our assessments, the following definitions are used:

Good (G) = Component or system is sound and performing its function. However, it may show signs of normal wear and tear, commensurate with its age, some minor remedial work may be required.

Fair (F) = Component or system is performing adequately at this time but exhibits deferred maintenance, evidence of previous repairs, workmanship not in compliance with commonly accepted standards, is obsolete, or is approaching the end of its typical Expected Useful Life. Repair or replacement is required to prevent further deterioration, restore it to good condition, prevent premature failure, or to prolong its Expected Useful Life. Component or system exhibits an inherent deficiency of which the cost to remedy is not commensurate with the deficiency but is best remedied by a program of increased preventative maintenance or periodic repairs.

Poor (P) = Component or system has either failed or cannot be relied upon to continue performing its original function as a result of: having realized or exceeded its typical expected useful life, excessive deferred maintenance, state of disrepair, an inherent design deficiency or workmanship. Present condition could contribute or cause the deterioration of contiguous elements or systems. Repair or replacement is required.

N/A = Not Applicable

2. PURPOSE AND SCOPE

2.1. PURPOSE

The purpose of this report is to assist the Client in evaluating the physical aspects of this property and how its condition may affect the Client's financial decisions over time. For this Comprehensive Facilities Needs Assessment, the major independent building components were observed and their physical conditions were evaluated in accordance with ASTM E2018-01. These components include the site and building exteriors and representative interior areas. The estimated costs for repairs and/or capital reserve items are included in the enclosed cost tables. All findings relating to these opinions of probable costs are included in the relevant narrative sections of this Report.

The Physical Plant staff and code enforcement agencies were interviewed for specific information relating to the physical property, code compliance, available maintenance procedures, available drawings, and other documentation.

2.2. SCOPE

ASTM E2018-01 requires that any deviations from the Guide be so stated within the report. EMG's probable cost threshold limitation is reduced from the Guide's $3,000 to $1,000, thus allowing for a more comprehensive assessment on smaller scale properties. Therefore, EMG's opinions of probable costs that are individually less than a threshold amount of $1,000 are typically omitted from this PCR. However, comments and estimated costs regarding identified deficiencies relating to life, safety or accessibility items are included regardless of this cost threshold.

In lieu of providing written record of communication forms, personnel interviewed from the facility and government agencies are identified in Section 2.3. Relevant information based on these interviews is included in Sections 2.3, 3.1, and other applicable report sections.

The assessment team will visit each identified property to evaluate the general condition of the building(s) and site improvements, review available construction documents in order to familiarize themselves with and be able to comment on the in-place construction systems, life safety, mechanical, electrical and plumbing systems, and the general built environment. The assessment team will conduct a walk-through survey of the building(s) in order to observe building systems and components, identify physical deficiencies and formulate recommendations to remedy the physical deficiencies.

- As a part of the walk-through survey, the assessment team will survey 100% of the facility's interior. In addition, EMG will survey the exterior of the properties including the building exterior, roofs, and sidewalk/pavement.
- The assessment team will interview the building maintenance staff so as to inquire about the subject property's historical repairs and replacements and their costs, level of preventive maintenance exercised, pending repairs and improvements, and frequency of repairs and replacements.

- The assessment team will develop opinions based on their site assessment, interviews with City of Stamford, Connecticut Public Schools building maintenance staff and experience gained on similar properties previously evaluated. The assessment team may also question others who are knowledgeable of the subject property's physical condition and operation or knowledgeable of similar systems to gain comparative information to use in evaluation of the subject property.
- The assessment team may review documents and information provided by City of Stamford, Connecticut Public Schools building maintenance staff that could also aid the knowledge of the subject property's physical improvements, extent and type of use, and/or assist in identifying material discrepancies between reported information and observed conditions.
- EMG will provide City of Stamford, Connecticut Public Schools with Sustainable Alternative Recommendations that will concentrate on Utility Savings Potential, Health and Environmental Benefits.
- EMG will provide an Energy Benchmarking Analysis to establish energy performance with relation to similar types of buildings.

2.3. PERSONNEL INTERVIEWED

The following personnel from the facility and government agencies were interviewed in the process of conducting the Comprehensive Facilities Needs Assessment:

Name and Title	Organization	Phone Number
Ms. Louise F. Spolowitz, Ph D. Principal	Toquam Magnet Elementary School	203.977.4556
Mr. David Borsey Head Custodian	Toquam Magnet Elementary School	203.977.4556
Mr. Gus Burreisci Project Manager	City of Stamford Public Schools	203.223.8118

The Comprehensive Facilities Needs Assessment was performed with the assistance of Ms. Louise F. Spolowitz, Ph D., Principal and Mr. David Borsey, Head Custodian for Toquam Magnet Elementary School, the on site Point of Contacts (POC), who were cooperative and provided information that appeared to be accurate based upon subsequent site observations. The on site contacts are very knowledgeable about the subject property and answered most questions posed during the interview process. The POC's management involvement at the property has been for the past 3.5 and 8 years respectively.

2.4. DOCUMENTATION REVIEWED

Prior to the Comprehensive Facilities Needs Assessment, relevant documentation was requested that could aid in the knowledge of the subject property's physical improvements, extent and type of use, and/or assist in identifying material discrepancies between reported information and observed conditions. The review of submitted documents does not include comment on the accuracy of such documents or their preparation, methodology, or protocol. The following documents were provided for review while performing the Comprehensive Facilities Needs Assessment:

- Client supplied floor plans
- Client supplied school schedules

- Recommended Capital Improvement Projects
- AHERA Three Year Re-Inspection Report 2006
- Roof Renovation Drawings by Fletcher Thompson dated August 11, 1997
- Modular Building Addition Architectural Drawings by Maitland and Strauss Architects, P.C.
- Original Architectural, Site and MEP Drawings by Sherwood, Mills and Smith dated August 8, 1967
- Renovation Architectural Drawings by Arthur L. Spaet and Associates, P.C. dated June 11, 1993
- Mechanical Inspection Certificates
- Elementary School Capacity Studies for Toquam by JMOA Engineering, P.C. dated October 12, 2001

No other documents were reviewed. The Documentation Request Form is provided in Appendix E.

2.5. PRE-SURVEY QUESTIONNAIRE

A Pre-survey Questionnaire was sent to the POC prior to the site visit. The questionnaire is included in Appendix E. Information obtained from the questionnaire has been used in preparation of this Facilities Needs Assessment.

3. ACCESSIBILITY, CODE AND MOLD

3.1. ADA ACCESSIBILITY

Generally, Title III of the Americans with Disabilities Act (ADA) prohibits discrimination by entities to access and use of "areas of public accommodations" and "commercial facilities" on the basis of disability. Regardless of its age, these areas and facilities must be maintained and operated to comply with the Americans with Disabilities Act Accessibility Guidelines (ADAAG).

Buildings completed and occupied after January 26, 1992 are required to comply fully with the ADAAG. Existing facilities constructed prior to this date are held to the lesser standard of compliance to the extent allowed by structural feasibility and the financial resources available. As an alternative, a reasonable accommodation pertaining to the deficiency must be made.

During the Comprehensive Building Condition Assessment, a limited visual observation for ADA accessibility compliance was conducted. The scope of the visual observation was limited to those areas set forth in EMG's *Abbreviated Accessibility Checklist* provided in Appendix D of this report. It is understood by the Client that the limited observations described herein does not comprise a full ADA Compliance Survey, and that such a survey is beyond the scope of EMG's undertaking. Only a representative sample of areas was observed and, other than as shown on the Abbreviated Accessibility Checklist, actual measurements were not taken to verify compliance. ADA compliance issues inside spaces are not within the scope of the survey.

The facility does not appear to be accessible with Title III of the Americans with Disabilities Act. Elements as defined by the ADAAG that are not accessible as stated within the priorities of Title III, are as follows:

Parking

- Adequate number of designated parking stalls and signage for vans is not provided. One standard handicap parking spaces must be converted to van-accessible.
- Striping of designated parking stall for gymnasium is not provided.

Ramps

- Install level landing for the ADA playground ramp.

Entrances/Exits

- Lever action hardware is not provided at all accessible locations (classroom and common area doors).

Paths of Travel

- Obstacle or protrusion from wall impeding access. Install cane detection for all of the drinking fountains adjacent to the restrooms.
- Stair handrails do not extend beyond the top and bottom risers.
- Compliant signage indicating accessible restrooms and general information is not provided.

- Install cup dispenser at an existing non-conforming water fountain in the gymnasium and cafeteria.

Elevators

- The elevator cab interior and all equipment are not ADA compliant. The cab interior clear space is less than the required 51″ x 68″. The ADA service from floor to floor requires an ADA study to determine the best means for accessibility to all levels of the building. An ADA study is recommended to determine the best means for addressing the ADA-accessibility issue for all floors. Refer to Section 1.2. A budgetary cost is included in the Replacement Reserves Report for a new ADA compliant elevator. Refer to Sections 1.2 and 3.1.
- There is no wheelchair lift in the building. In order to provide a wheelchair-accessible route to the stage, installation of a wheelchair lift is recommended. The estimated cost of this work is included in the Replacement Reserves Report.

Restrooms

- Existing student restrooms require complete modifications for accessibility to accommodate wheelchair access. T

A full ADA Compliance Survey may reveal additional aspects of the property that are not in compliance.

Corrections of these conditions should be addressed from a liability standpoint, but are not necessarily code violations. The Americans with Disabilities Act concerns civil rights issues as they pertain to the disabled and its Accessibility Guidelines are not a construction code, although many local jurisdictions have adopted them as such. The estimated costs to address the achievable items noted above are included in the Replacement Reserves Report.

3.2. CODE INFORMATION AND FLOOD ZONE

According to Mr. Terrance Shay, Deputy Fire Marshal for the Stamford Fire & Rescue, Office of the Fire Marshal, there are no outstanding fire code violations on file. The most recent inspection was conducted by the fire department on August 20, 2008. The fire department inspects the property on an annual basis.

According to the Flood Insurance Rate Map, published by the Federal Emergency Management Agency (FEMA) and dated September 17, 1993, the property is located in Zone X, defined as areas outside the one percent annual chance floodplain, areas of one percent annual chance sheet flow flooding where average depths are less than one foot, areas of one percent annual chance stream flooding where the contributing drainage area is less than one square mile, or areas protected from the one percent annual chance flood by levees. No Base Flood Elevations or depths are shown within this zone. Insurance purchase is not required in these zones. In communities that participate in the NFIP, flood insurance is available to all property owners and renters in this zone.

3.3. MOLD

EMG performed a limited visual assessment for the presence of mold, conditions conducive to mold, and evidence of moisture in readily accessible interior areas of the property.

No suspect mold was observed, but moisture was observed in the following areas:

- Classrooms, Offices, Common Areas and Storage Rooms; the ceiling tiles and drywall affected by the moisture were approximately two to 10 square feet in size resulting from HVAC condensation, past repaired roof leaks or current roof leaks. The number of locations affected by the moisture was approximately 10 percent of the rooms and common areas.

Additional discussion and description of the correction efforts required with regard to the moisture infiltration issues are discussed in Sections 6.8 and 8.1 of this report, and associated costs are included within those sections.

Suspect mold growth was observed in the following areas:

- Corridor adjacent to Classroom 33; the ceiling tiles affected by the moisture were approximately two square feet in size in three locations resulting from HVAC condensation.
- Classroom P3; the ceiling tile affected by the moisture was approximately two square feet in size resulting from a repaired roof leak.
- Classroom P4; the ceiling tiles affected by the moisture were approximately two square feet in size in three locations resulting from a repaired roof leak.
- Maintenance Shop; the air handling unit pipe insulation affected by the moisture was approximately 15 lineal feet in size resulting from condensation.

Prior to remediation by personnel specifically trained in the handling of hazardous materials, a mold assessment should be conducted by a health and safety professional with experience performing microbial investigations. The estimated costs to address the moisture noted above are included in the Replacement Reserves Report. In addition, the source of this moisture should be addressed in order to prevent future mold problems. The estimated costs of corrective action shall be determined as part of the mold assessment recommended; these estimated costs are not included in the tables.

4. EXISTING BUILDING EVALUATION

4.1. ROOM TYPES

The following table identifies the reported room types and mix at the subject property.

Room Types and Mix			
Quantity	**Type**	**Vacant Rooms**	**Down Rooms**
43	Classroom	1	1
10	Office	0	0
9	Mechanical	0	0
21	Storage	0	0
1	Gymnasium	0	0
1	Cafeteria/ Auditorium	0	0
1	Media Center	0	0
86	**TOTAL**	**1**	**1**

4.2. ROOMS OBSERVED

EMG observed approximately 100 percent of the building in order to gain a clear understanding of the property's overall condition. Other areas accessed included the exterior of the property, a representative sample of the roofs, and the interior common areas.

All areas of the property were available for observation during the site visit.

A "down room" or area is a term used to describe a non-usable room or area due to poor conditions such as fire damage, water damage, missing equipment, damaged floor, wall or ceiling surfaces, or other significant deficiencies. According to the POC, there is one down room. Room 52 is considered down as it is currently under renovation for past water intrusion. The room is to become Classroom 52 and utilized for the visually impaired. Please see Section 8.1 for additional information.

5. SITE IMPROVEMENTS

5.1. UTILITIES

The following table identifies the utility suppliers and the condition and adequacy of the services.

Site Utilities		
Utility	**Supplier**	**Condition and Adequacy**
Sanitary sewer	City of Stamford	Good
Storm sewer	City of Stamford	Good
Domestic water	Aquarion	Good
Electric service	Connecticut Light and Power (CL&P)	Good
Natural gas service	Yankee Gas	Good

Observations/Comments:

- The utilities provided appear to be adequate for the property.
- See Section 7.1 for descriptions and comments regarding the underground fuel storage tank.
- See Section 7.4 for descriptions and comments regarding the emergency generator.

5.2. PARKING, PAVING, AND SIDEWALKS

The main entrance drive is located along Ridgewood Avenue on the north side of the property. Additional entrance drives are located along Toms Road. The drives at Toms Road are shared drives utilized by both Dolan and Toquam schools.

Based on a physical count, parking is provided for approximately 122 cars. The parking ratio is 1.33 spaces per thousand square feet of floor area. The main parking lot is located at the front of the school building, at the east elevation, and contains 57 parking spaces, of which five are handicapped-accessible stalls. The parking stalls at the rear of the building are shared with Dolan and contain 65 parking spaces, of which two are handicapped-accessible stalls. All of the parking stalls are located in open lots. There are a total of seven handicapped-accessible parking stalls, of which none are van-accessible.

The sidewalks at the front and side elevations of the building are constructed of cast-in-place concrete. The sidewalks at the property also consist of asphalt at the front elevation, side elevation adjacent to the play equipment and modular building and at the rear of the building. Cast-in-place concrete steps with metal handrails are located at grade changes at the front parking lot.

The basketball courts are located at the rear asphalt parking lot.

The curbs are constructed of a combination of cast-in-place concrete curbing and extruded asphalt curbing placed at the edge of the pavement.

Observations/Comments:

- The asphalt pavement is in fair to poor condition. There are significant areas of failure and deterioration, such as alligator cracking, localized depressions and pot holes, as observed at the front parking lot and adjacent to the rear basketball courts. The damaged areas of paving must be cut and patched with new asphalt in order to maintain the integrity of the overall pavement system. The estimated cost of this work is included in the Replacement Reserves Report.
- In addition to the aforementioned, pothole patching, crack sealing, seal coating, and restriping of the asphalt pavement will be required during the evaluation period to maximize the pavement life. The estimated cost of this work is included in the Replacement Reserves Report.
- The concrete sidewalks are in good to poor condition. There are isolated areas of settlement, deterioration and cracking, as noted at the front elevations of the building. In addition, tripping hazards occur on the sidewalks along the front elevation, due to vertical displacement between the concrete sidewalks and curbing. There is an overlay of asphalt at portions to help elevate the concrete sidewalks; however the asphalt is deteriorating and also contributing to the trip hazards. It is recommended that all damaged concrete sidewalks are replaced within the year. The estimated cost of this work is included in the Replacement Reserves Report.
- In addition to the aforementioned concrete sidewalk replacements; based on the estimated Remaining Useful Life (RUL) and current condition, a concrete sidewalk replacement program will be required during the evaluation. The estimated cost of this work is included in the Replacement Reserves Report.
- The asphalt sidewalks are in good to poor condition. There are isolated areas of deterioration and cracking, as noted at the front and rear elevations of the building. The damaged areas of the asphalt sidewalks will require replacement within the year. The estimated cost of this work is included in the Replacement Reserves Report.
- In addition to the aforementioned asphalt sidewalk replacements; based on the estimated Remaining Useful Life (RUL), an asphalt sidewalk replacement program will be required during the evaluation. The estimated cost of this work is included in the Replacement Reserves Report.
- The concrete steps are in fair condition. Based on the estimated Remaining Useful Life (RUL) and condition, the concrete steps will require replacement during the evaluation. The estimated cost of this work is included in the Replacement Reserves Report.
- There is a worn path at the rear (southwest corner) of the building due to personnel that park at the rear of the building have to walk up the steep hill in order to enter through the front main entrance doors. To allow for safe entrance to the building from the rear parking lot and to prevent washout of the hill, installation of concrete steps and railings is recommended. The estimated cost of this work is included in the Replacement Reserves Report.
- The concrete and asphalt curbs throughout the property are in good to poor condition. There are isolated areas of deteriorated, shifting, missing and displacement of curbing, as noted at various locations throughout the site. Replacement of all damaged concrete and asphalt curbing will be required within the year. The estimated cost of this work is included in the Replacement Reserves Report.

Sustainable Recommendations:

- A sustainable recommendation for asphalt is to use recycled asphalt pavement (RAP) from a local source. This will reduce carbon emissions from production and transportation of new asphalt material.
- A sustainable recommendation for concrete is to use recycled concrete aggregate (RCA) from a local source. This will reduce carbon emissions from production and transportation of new concrete material.

5.3. DRAINAGE SYSTEMS AND EROSION CONTROL

Storm water from the roofs, landscaped areas, and paved areas flows into on site inlets and catch basins with underground piping connected to the municipal storm water management system.

Various locations in the building are equipped with sump pumps, including the custodial bathroom, the closet at classroom 45, storage room 52 and the electrical room at the middle level.

Observations/Comments:

- There is no evidence of storm water runoff from adjacent properties. The storm water system appears to provide adequate runoff capacity. There is no evidence of major ponding; however there is erosion and/or a worn path at the rear (southwest corner) of the building. According to the custodial staff, personnel that park at the rear of the building have to walk up the steep hill to enter through the front main entrance doors. See Section 5.2 for recommendations and costs.
- The sump pumps are reported to be in good condition. The testing of equipment is not within the scope of a Facilities Needs Assessment. The storm water system will require routine maintenance during the evaluation period.

Sustainable Recommendations:

- There are no sustainable recommendations for the drainage systems.

5.4. TOPOGRAPHY AND LANDSCAPING

The property slopes gently downward from the east side of the property toward the west property line.

The landscaping consists of trees, shrubs, and grasses. Flowerbeds are concentrated along the front of the building.

Surrounding properties include residential developments and Dolan Middle school at the rear.

Reinforced concrete, brick and stone masonry retaining walls are located at grade changes at various locations adjacent to the building.

Timber retaining walls are located at the playground areas at the right side (north) elevation of the property.

Observations/Comments:

- The topography and adjacent uses do not appear to present conditions detrimental to the property.
- The landscape materials are in good condition and will require routine maintenance during the evaluation period.
- The retaining walls are in good condition. Routine maintenance will be required during the evaluation period.

Sustainable Recommendations:

- There are no sustainable recommendations for landscaping.

5.5. GENERAL SITE IMPROVEMENTS

Property identification is provided by the school name displayed on the front exterior elevation.

Site lighting is provided by property-owned, wood, streetlight standards. One metal pole light is located at the basketball courts. The light standards are spaced along the drive aisles throughout the parking areas. Light fixtures mounted on wood and metal poles are located along walkways and drive aisles throughout the property.

Exterior building illumination is provided by surface-mounted light fixtures on the exterior walls. Recessed and surface-mounted light fixtures are located in the exterior soffits.

A perimeter fence is located along the north property line. The fence is constructed of chain link with metal posts. Chain link fencing is also located adjacent to the playground and play field areas.

Two playground areas are located at the interior courtyard and right side of the building. Each playground contains plastic and metal play equipment. The playground surface consists of a rubberized play surface at the interior courtyard and wood chips at the right side of the building play equipment.

There is a play field at the north side of the modular building. The play field has compacted dirt and grass areas.

Basketball goals are located at the rear of the building in the parking lot. The paved sections of the basketball courts are described in Section 5.2.

Metal guardrails are located at various locations along the drive lanes and parking lots.

Dumpsters are located on the rear landscaped areas.

Observations/Comments:

- The building identification sign is in good condition, requiring routine maintenance during the evaluation period; however, there is no property identification signage. It is recommended that a new property identification sign be installed to easily locate the property. The estimated cost of this work is included in the Replacement Reserves Report.
- The exterior site and building light fixtures are in good overall condition; however, according to the POC, the building lights at night have poor illumination at various areas, including areas at the rear of the building and adjacent to the modular building. The lack of adequate illumination is a safety hazard. Based on these observations, installation of additional building light fixtures will be required immediately, to provide for necessary levels of night lighting for security measures. The estimated cost of this work is included in the Replacement Reserves Report.
- The site fencing is in good to fair condition. Based on its estimated Remaining Useful Life (RUL), the chain link fencing will require replacement during the evaluation period. The estimated cost of this work is included in the Replacement Reserves Report.
- In addition a perimeter fence is recommended along the western property line to prevent unwanted traffic flow into the site's courtyard. The estimated cost of this work is included in the Replacement Reserves Report.
- The playground equipment is in good condition and will require routine maintenance during the evaluation period.

- The play field is partially barren and will require re-grading and reestablishment of ground cover. Additionally the field is currently not irrigated. The installation of an underground irrigation system is recommended. The estimated cost of this work is included in the Replacement Reserves Report.
- The basketball goals are in fair condition. Based on its estimated Remaining Useful Life (RUL) and condition, the basketball goals will require replacement during the evaluation period. The estimated cost of this work is included in the Replacement Reserves Report.
- The metal guardrails are in good condition and will require routine maintenance during the evaluation period.
- The dumpsters are owned by the City of Stamford. The dumpsters are in good condition, requiring routine maintenance during the evaluation period.

Sustainable Recommendations:

- A sustainable recommendation for site lighting is to install photo sensors on exterior lighting. This will reduce energy consumption by reducing the time the exterior lights are used.
- A sustainable recommendation for fencing is to install recycled PVC fence sections during fencing replacement.
- A sustainable recommendation for playground equipment is to install recycled PVC play structures at the time of replacement.

6. BUILDING ARCHITECTURAL AND STRUCTURAL SYSTEMS

6.1. FOUNDATIONS

According to the structural drawings, the foundations consist of reinforced, concrete piles at load-bearing column locations and cast-in-place, concrete, perimeter, wall footings with concrete, foundation walls.

The basement has load-bearing, concrete perimeter, retaining walls.

Observations/Comments:

- The foundations and footings could not be directly observed during the site visit. There is no evidence of movement that would indicate excessive settlement.
- The foundations and footings can not be directly observed. There is water along the exterior foundation walls adjacent to the air shaft entering into the electrical room and electrical generator room. There is evidence of efflorescence, pooling water and moisture conditions on the interior concrete walls. The water intrusion occurs from the adjacent landscaping. The south foundation wall slopes moderately from east to west. In addition, water is also entering into the gymnasium and cafeteria caused by missing and brittle caulking along the courtyard wall base. Additional water intrusion may occur through the cracked and spalling pavement. The same condition exists along the north side courtyard staircase and the southeast corner of the courtyard. Water is entering through the stair slabs along the wall base. A Professional Engineer with specific expertise in waterproofing and drainage design, in this geographical area must be retained in conjunction with a qualified contractor to supervise, evaluate the site conditions and provide recommendations consistent with local regulatory and code requirements to perform the necessary repairs. Based upon the observed conditions of the interior and exterior walls; repairs may include excavation of the foundation, waterproofing, courtyard concrete replacement and wall base sealant. During the repair of the courtyard; the interior concrete walls should be repaired to seal all areas of water penetration. A budgetary cost for this work is included in the Replacement Reserves Report. Additional costs may arise based upon the findings the findings of the study; subsequent costs are not included in the report. The estimated cost of this work is included in the Replacement Reserves Report.
- The boiler room concrete floor slab is in fair to poor condition. Water is entering through the slab pipe penetrations and along the east perimeter walls. Currently there are two sump pumps within classrooms and additional sump pumps within the boiler room to remove water from below the concrete slab and adjacent to the walls on the east perimeter. A Civil Engineer must be retained to perform a drainage study by analyzing the existing condition, make recommendations and, if necessary, estimate the scope and cost of any required repairs. As part of the scope of work EMG is recommends the following be performed in conjunction with the drainage study; a curtain drain is to be installed along the east building perimeter. The excavation of the foundation should occur with repairs and waterproofing. The interior areas of the floor slab and wall should be repaired with an epoxy crack injection or as directed by the Civil Engineer. The estimated cost for epoxy injection and a budgetary cost for related work are included in the Replacement Reserves Report. The estimated cost to retain an engineer and repair the boiler room is included in the Replacement Reserves Report in section 1.2. Additional costs may arise based upon the findings of the study; subsequent costs are not included in the report.

Sustainable Recommendations:

- There are no sustainable recommendations for foundations.

6.2. SUPERSTRUCTURE

The building has load-bearing, concrete masonry unit (CMU), interior walls and steel columns, supporting the upper floors and roofs. The upper floors are concrete-topped, metal decks supported by steel beams. The roofs are constructed of metal decks supported by steel beams.

Observations/Comments:

- The superstructure is exposed in some locations, allowing for limited observation. Walls and floors appear to be plumb, level, and stable. There are no significant signs of deflection or movement.

Sustainable Recommendations:

- There are no sustainable recommendations for superstructure.

6.3. ROOFING

The primary roofs are classified as flat roofs. The roofs are finished with a mineral-surfaced cap sheet over a multi-ply, bituminous, built-up membrane topped with gravel. The replaced roof section is finished with a single-ply, elastomeric, roofing membrane. The roofs are insulated with rigid insulation boards.

The exterior perimeter walls extend above the surface of the roofs, creating parapet walls. The roof membrane terminates along a flashed cant strip at the base of the parapet walls. Along the clerestory the roof membrane turns up the sides of the parapet walls and terminates at sheet metal copings. The roofs have sheet metal flashing elements and built-up base and edge flashing.

Storm water is drained from the roofs by internal drains which discharge into the underground storm drainage system.

Curb-mounted skylights provide natural illumination in the main office and common areas. Sloped skylights are above the clerestory openings on the middle building level. The skylights are constructed of metal framing finished with single pane opaque or clear glazing.

A steel framed canopy connects Toquam Magnet Elementary School with Dolan Middle School. The canopy has standing seam metal roof panels and metal framed single pane Plexiglas curtain wall lutes supported by steel and concrete posts.

There are no attics. The roof structures are exposed.

Observations/Comments:

- The roof finishes vary in age. The single-ply roof is covered by a warranty. A copy of the warranty is attached in Appendix C. The roofs are maintained by the in-house maintenance staff and an outside contractor.

- The fields of the roofs are in good to poor condition. Roof leaks have occurred within the past year, and some of these leaks remain active. The leaks occur adjacent to the chiller plant pipe penetrations, several of the roof clerestory windows, and outside of classroom 2 and 35. The estimated cost of this work is included in the Replacement Reserves Report. Leaks also occur in the modular building roofing system; please refer to Section 9.0 for additional information.
- EMG also conducted a separate roof assessment for this project. Wet areas of insulation requiring repair were found during infrared scans of the roof. Additionally recommendations for anticipated roof replacement work are also provided in this report. Estimated costs from this report recommended during the evaluation period are included in the Replacement Reserves Report. See EMG project number 88166.09R-002.244 for more detailed discussion and findings.
- There is no evidence of roof deck or insulation deterioration. The roof substrate and insulation should be inspected during any future roof repair or replacement work.
- There is no evidence of fire retardant treated plywood (FRT) and, according to the POC, FRT plywood is not used.
- The roof flashings are in good to fair condition requiring replacement in conjunction with the roofing system.
- The parapet walls and copings are in good condition requiring routine maintenance during the evaluation period.
- Roof drainage appears to be adequate. Clearing and minor repair of drain system components should be performed regularly as part of the Physical Plant's routine maintenance program.
- The roof vents are in good condition requiring routine maintenance during the evaluation period.
- The curb mounted skylights are in good condition requiring routine maintenance during the evaluation period.
- The sloped clerestory skylights are in fair to poor condition. According to the POC and observed water staining adjacent to the openings; water is entering through the framing. The skylights will require replacement. The estimated cost of this work is included in the Replacement Reserves Report.
- The Dolan Annex canopy is in fair to poor condition. The metal framing has begun to rust and corrode in numerous locations. In addition, the caulking joints between the canopy and brick veneer has failed allowing for water to run down the building side causing water damage to the entrance structure. There are numerous broken Plexiglas lights due to impact damage and vandalism, also requiring repairs. The estimated cost of this work is included in the Replacement Reserves Report.
- According to the client provided JMOA five year capital plan, fencing to protect roof access by the public is required at select locations. A budgetary cost allowance for this work is included in the Replacement Reserves Report.

Sustainable Recommendations:

- A sustainable recommendation for roofing is to replace the built-up roofs with a light colored single ply membrane.

6.4. EXTERIOR WALLS

The exterior walls are finished with brick masonry veneer. The soffits are concealed and are finished with stucco. Portions of the exterior walls are accented with stucco or concrete.

The stairwell exterior walls and entrance elevations are clad with a metal-framed, curtain wall system. The curtain wall system is anchored to the superstructure. The curtain wall has horizontal bands of tinted, glazed, vision panels. The parapet spandrels and fascia panels are butt jointed factory-finished, metal panels.

Horizontal and vertical bands of sealant are installed at glazing joints, spandrel panel joints, and at joints between finish transitions.

Building sealants (caulking) are located between dissimilar materials, at joints, and around window and door openings.

Observations/Comments:

- The courtyard and maintenance entrance stucco is in fair to poor condition. There are isolated areas of cracked and spalled stucco. The damaged stucco must be repaired and/or replaced. The cost to repair the damaged stucco is relatively insignificant and the work can be performed as part of the property management's routine maintenance program. The cost of this work is not included in the cost tables.
- The brick veneer is in good to poor condition. Numerous isolated portions of the mortar joints are cracked generally on the Dolan Staircase exit, below the clerestory skylights and other locations adjacent to building corners or below the building setbacks. The damaged mortar joints must be cleaned and re-pointed. All elevations should be reviewed and re-pointed as required. The estimated cost of this work is included in the Replacement Reserves Report. Additional areas of the brick veneer on the retaining walls of the staircases and below building clerestory have areas of efflorescence. The affected areas of brick masonry must be cleaned. An efflorescence-checking coating must also be applied to the brick masonry. The estimated cost of this work is included in the Replacement Reserves Report.
- The curtain wall system is in fair to poor condition. Numerous mullions have peeling paint and corrosion. Similar conditions exist on the metal spandrel panels. In addition, the system has single pane glazing. Based on its estimated Remaining Useful Life (RUL) and condition, the curtain wall system and related doors will require replacement during the evaluation period. The estimated cost of this work is included in the Replacement Reserves Report.
- The expansion joint sealant is flexible, smooth, and in good condition. Based on the estimated Remaining Useful Life (RUL) and current condition, the sealant will require replacement over the evaluation period. The estimated cost of this work is included in the Replacement Reserves Report.

Sustainable Recommendations:

- A sustainable recommendation for exterior finishes is to use low VOC sealant or caulking around exterior doors and windows and the paint finishes on the stucco.
- A sustainable recommendation for windows is to replace the single pane storefront with double paned insulated units.

6.5. EXTERIOR AND INTERIOR STAIRS

The interior stairs are constructed of steel and have concrete-filled, steel pan treads finished with vinyl treads. The balusters are constructed of metal and have wood handrails.

The exterior stairs are constructed of reinforced concrete. The handrails and balusters are constructed of metal.

Observations/Comments:

- The exterior and interior stairs, balusters, and handrails are in good to poor condition. The exterior handrail finishes are worn at the entrance staircases. The cost to repair the worn metal surfaces is relatively insignificant and the work can be performed as part of the property management's routine maintenance program. The cost of this work is not included in the cost tables. The interior stairs will require routine maintenance during the evaluation period.
- The exterior handrails to the modular building are in good to poor condition. There are several stairs and the ADA ramp with missing handrails. The estimated cost of this work is included in the Replacement Reserves Report.
- According to the client provided JMOA five year capital plan, the walkway and stairs to the Dolan Annex requires anti-skid treads or treatment. A budgetary cost allowance for this work is included in the Replacement Reserves Report.

Sustainable Recommendations:

- A sustainable recommendation for exterior and interior stairs is to use low VOC coatings for the stairs and guardrails when repainting.

6.6. WINDOWS AND DOORS

The stairwell and entrance elevation windows are part of an aluminum-framed, storefront system incorporating the entry doors described in Section 6.4. The doors are fully-glazed, aluminum-framed doors set in the metal framing system.

The building windows are metal-framed, single-pane glazed, tilt units with butt jointed metal fascia panels.

The service doors are painted, metal doors set in metal frames. The doors have cylindrical locksets with knob handle hardware.

There is one overhead doors located at the maintenance garage. Two additional overhead doors are utilized to secure the courtyard playground. The overhead doors are coiling metal doors and are equipped with automatic openers.

Observations/Comments:

- The windows are in fair to poor condition. The windows are single pane units. The window gaskets are brittle and damaged as is the framing sealant to the brick veneer. The windows require replacement. Please refer to Section 6.4 for replacement of the curtain wall system with associated windows and exterior entrance doors.
- According to the POC, the property does not experience a significant number of complaints regarding window leaks or window condensation. There is only minor evidence of window leaks or condensation.
- The exterior doors and door hardware are in good to fair condition. Common entrance door replacements to occur in conjunction with the curtain wall replacement in Section 6.4. Service doors are in fair condition and will require replacement during the evaluation period. The estimated cost of this work is included in the Replacement Reserves Report.
- The overhead doors are in good condition and will require routine maintenance during the evaluation period.

Sustainable Recommendations:

- A sustainable recommendation for doors is to replace with insulated, energy efficient doors.

6.7. PATIO, TERRACE, AND BALCONY

There is one courtyard within the center of the building. The courtyard is utilized as the exterior kindergarten playground. The courtyard is paved with concrete slabs and fitted with playground equipment in the center. Landscaping consists of concrete tree planters.

Observations/Comments:

- The courtyard concrete slabs are in poor condition. There are large sections of spalling concrete and the remaining areas have extensive map cracks. The perimeter exterior wall base to slab has deteriorated and it appears the slabs have settled below their original elevation. The estimated cost of this work is included in the Replacement Reserves Report.

Sustainable Recommendations:

- A sustainable recommendation for concrete is to use recycled concrete aggregate (RCA) from a local source. This will reduce carbon emissions from production and transportation of new concrete material.

6.8. COMMON AREAS, ENTRANCES, AND CORRIDORS

The main entrance vestibule along Ridgewood Avenue enters onto the upper floor of the building. The entrance lobby contains display cases, bulletin boards and the entrance to the main administrative office. Corridors leading to the remainder of the building's facilities and classrooms are accessed directly from corridors beyond the lobby and from corridors on each floor. An elevator provides access to each floor of the building.

Restrooms are located within the main office. There are restrooms located adjacent to each main building facility; that is gymnasium and auditorium/cafeteria. Additional boy's and girl's restrooms are located adjacent to the classrooms or within the classrooms. The restrooms are partially ADA compliant. The staff restrooms are located on each floor, also partially ADA compliant.

The following table identifies the interior common areas and generally describes the finishes in each common area.

Common Area	Floors	Walls	Ceilings
Entrance Lobby	Vinyl composition tiles	Painted drywall and brick veneer	Suspended acoustic tiles and painted drywall
Corridor	Vinyl composition tiles	Painted drywall and brick veneer	Suspended acoustic tiles and painted drywall
Common Area Restroom	Ceramic tile	Ceramic tile and painted drywall	Painted drywall
Office	Vinyl composition tile or carpet	Painted drywall and brick veneer	Suspended acoustic tiles or painted drywall

Common Area	Floors	Walls	Ceilings
Media Center	Carpet	Painted drywall and brick veneer	Suspended acoustic tiles and painted drywall
Auditorium/ Cafeteria	Vinyl tile and wood	Painted drywall and brick veneer	Suspended acoustic tiles and painted drywall
Gymnasium	Wood plank	Painted drywall, foam padding and brick veneer	Suspended acoustic tiles

The metal frames interior wood doors are fitted with vision panels. The classroom doors are also wood doors with vision lights set in metal frames. The doors have cylindrical locksets with lever or knob handles; the stairwell doors have push/pull plates and panic bars. The interior service doors have lever or knob handle hardware with keyed deadbolts.

Observations/Comments:

- The common areas were partially renovated approximately ten years ago.
- The interior finishes in the common areas are in good condition. Based on its estimated Remaining Useful Life (RUL), the common area carpet will require replacement during the evaluation period. The estimated cost of this work is included in the Replacement Reserves Report.
- The wood flooring in the gymnasium is in good condition. Refinishing will be required during the evaluation period. The estimated cost of this work is included in the Replacement Reserves Report.
- The vinyl tiles in the auditorium are in good condition. Replacement will be required during the evaluation period. The estimated cost of this work is included in the Replacement Reserves Report.
- The vinyl composition tiles in the corridors are in good condition. Replacement is required. The estimated cost of this work is included in the Replacement Reserves Report. According to the client provided AHERA document flooring with asbestos-containing material is located in the majority of the classrooms, restrooms, and corridors. A cost allowance for proper removal and disposal of the asbestos-containing vinyl tile is included in the Replacement Reserves Report as part of the recommended vinyl tile replacement work. This allowance is based solely on the information presented in the client provided AHERA document. An excerpt of this AHERA document is included in the appendices. Identifying asbestos-containing material is not within the scope of this facility condition assessment.
- A cost allowance for the abatement of lead containing materials is included in the client provided JMOA five year capital plan. Lead containing materials were not reported; however, based on the cost budgeted in the capital plan, an allowance for lead abatement is included in Replacement Reserves Report.
- Interior painting will also be required during the evaluation period. The estimated cost of this work is included in the Replacement Reserves Report.
- There are numerous isolated areas of drywall and ceiling tiles throughout the building's common areas which have water damage. The moisture is caused by HVAC condensate, existing and/or repaired roof leaks. The water stained finishes have not been replaced and require replacement. The cost to replace the damaged ceiling tiles is relatively insignificant and the work can be performed as part of the property management's routine maintenance program. The cost of this work is not included in the cost tables.
- Suspended ceiling tile are in fair to poor condition. There are numerous sections of warped tiles. The ceiling tiles will require replacement during the evaluation period. The estimated cost of this work is included in the Replacement Reserves Report.

- According to the client provided JMOA five year capital plan, the built-in cabinetry is planned for replacement in the near future. A budgetary cost allowance for this work is included in the Replacement Reserves Report.
- The interior doors are in good to fair condition requiring routine maintenance during the evaluation period.
- According to the client provided JMOA five year capital plan, acoustical treatment is required in the cafeteria. A budgetary cost allowance for this work is included in the Replacement Reserves Report.

Sustainable Recommendations:

- Sustainable recommendations for the interior finishes are to use low VOC paints, linoleum or cork flooring, and recycled material carpeting.

7. BUILDING (CENTRAL) MECHANICAL AND ELECTRICAL SYSTEMS

7.1. BUILDING HEATING, VENTILATING, AND AIR-CONDITIONING (HVAC)

Heating and cooling are provided in the modular classrooms by individual, direct-expansion, constant-volume, electric, packaged, rooftop-mounted, HVAC units. There are a total of five units ranging in size from 4 to 5 tons. The cooling equipment uses R-22 as a refrigerant.

The following table describes the rooftop units:

Packaged Rooftop Units				
Quantity	**Manufacturer**	**Cooling Capacity**	**Heating Type**	**Manufacture Year**
1	American Standard	5 tons	Electric Resistance	2006
1	American Standard	5 tons	Electric Resistance	2006
1	American Standard	5 tons	Electric Resistance	2006
1	American Standard	5 tons	Electric Resistance	2006
1	American Standard	4 tons	Electric Resistance	1997

Air distribution is provided to supply air registers by ducts concealed above the ceilings. Return air grilles are located in each space. The heating and cooling system are controlled by local thermostats.

Hot water for the central heating system is supplied by two cast iron boilers. The boilers have dual-fuel capability, utilizing natural gas or fuel oil. Each boiler has a rated input capacity of 3,035 MBH and is located in the basement mechanical room. The hot water loop contains four expansion tanks.

Fuel oil is supplied to the boilers by a fuel oil pump set and a 10,000-gallon underground storage tank (UST). The UST is located at the rear of the building adjacent to the service drive beneath the landscaped area.

Circulating pumps provide heated water to each temperature-controlled space via a two-pipe distribution system. The hot water supplies the air handling units, cabinet radiant units, and baseboard radiant units.

Heating is provided in the classrooms by perimeter, cabinet-mounted, finned-tube radiant heat units. Heating is provided in the corridors by recessed cabinet-mounted, finned-tube radiant heat units. Heating is provided in the restrooms by cabinet-mounted, finned-tube radiant heat units. The radiant units are supplied with heated water by the central system. Supplemental heating is provided in mechanical rooms, custodial room and garage by ceiling-mounted unit heaters. The heating units are supplied with hot water by the central system.

The classrooms are cooled by a central plant system. Chilled water for the central cooling system is supplied by two air-cooled liquid chillers. Each chiller has a nominal rating of 101.5 tons and uses R-22 as a refrigerant.

Circulating pumps provide chilled water to each temperature-controlled space via a two-pipe distribution system. The chilled water supplies the fan coil units.

Air distribution is provided to supply air registers by ducts exposed at the classrooms or concealed above the ceilings. Return air grilles are located adjacent to the fan coil units. The cooling system is controlled by the building energy management system (EMS).

Cooling is provided in the offices and computer lab classrooms by split-system air-conditioning units. The rooftop condensing unit for the office is a nominal 3-ton unit and the condensing unit for the computer labs is a nominal 5-ton unit. The condensing units supply interior ceiling-mounted or floor-mounted air handling units. The condensing units use R-22 as a refrigerant.

Heating and/or cooling are provided in the common areas by high-capacity, air handling units equipped with heating and/or cooling coils. The air handling units are supplied with heated and/or chilled water by the central system. Air distribution is provided to supply air registers by ducts concealed above the ceilings. Return air grilles are located in each space. The following table describes the air handling units:

Air Handling Units					
Designation	**Location**	**Area Served**	**Air Flow**	**Cooling**	**Heating**
AHU 1	Middle Mechanical Room	East Wing, Indoor Play Area	4,000 CFM	Chilled water coil	Hot water coil
AHU 2	Middle Mechanical Room	East Wing, Classrooms 46, 48 and 50	3,000 CFM	None	Hot water coil
AHU 3 (New Unit)	Custodial Room	South Wing, Classrooms 38, 40, 42 and 44	3,900 CFM	Chilled water coil	None
AHU No. Unavailable	Custodial Room	South Wing, Classrooms 38, 40, 42 and 44	3,900 CFM	None	Hot water coil
AHU No. Unavailable	Media Closet	Media	1,650 CFM	None	Hot water coil
AHU No. Unavailable	Media Closet	Media	1,650 CFM	None	Hot water coil
AHU 4	Ceiling	South Wing, Lecture Room	1,500 CFM	None	Hot water coil
AHU 5	Ceiling	South Wing, Lecture Room	1,500 CFM	None	Hot water coil
AHU 6	Closet	South Wing, Administration	2,100 CFM	Air-cooled Condenser	Hot water coil
AHU 7	Middle Mechanical Room	West Wing, Gym and Cafeteria	3,000 CFM	Chilled water coil	Hot water coil
AHU 8	Middle Mechanical Room	West Wing, Gym and Cafeteria	3,000 CFM	Chilled water coil	Hot water coil

Air Handling Units					
Designation	**Location**	**Area Served**	**Air Flow**	**Cooling**	**Heating**
AHU 9	Middle Mechanical Room	West Wing and Gym	3,000 CFM	None	Hot water coil
AHU 10	Middle Mechanical Room	West Wing and Gym	3,000 CFM	None	Hot water coil
AHU 11	Middle Mechanical Room	West Wing and Kitchen	1,600 CFM	None	Hot water coil
AHU 12	Middle Mechanical Room	East Wing, Classrooms 46, 48 and 50	5,400 CFM	Chilled water coil	None

The kitchen, cafeteria, bathrooms, and other areas are ventilated by mechanical exhaust fans. High-capacity ventilation fans are mounted on the roof and are connected by concealed ducts to each ventilated space.

Heating is provided in the corridor at the modular building by eight electric, perimeter, baseboard-mounted finned-tube, and radiant heat units.

The heating and cooling system is controlled by a building energy management system (EMS), located in the custodial office. The EMS provides individual control and performance data for the boilers, chillers, circulating pumps, air handling units, and domestic water heating system. The system is actuated by pneumatic controls. The air compressor is located in the basement mechanical room.

Observations/Comments:

- The HVAC systems are maintained by the in-house maintenance staff.
- The HVAC equipment varies in age. The boilers were refurbished in 2002-2003 and new burners were installed in 2007. The chillers were installed during the 1990/1991 renovation. The classroom FCU's are 15 years old. The air handing units are original. HVAC equipment is reportedly replaced on an "as needed" basis.
- The HVAC system is reportedly highly inconsistent. Custodial staff reported that temperature control is inadequate in the building and that heating and cooling are at times required simultaneously for maintaining a comfortable environment. It is recommended that an HVAC contractor evaluate the building for the potential reconfigure of the existing control system or to add increased zoning for better temperature control in the building. The cost of the follow-up evaluation is included in section 1.2. A budgetary cost allowance to renovate the HVAC systems is included in the Replacement Reserves Report.
- The rooftop-mounted, packaged, HVAC units appear to be in good to fair condition. Based on the estimated Remaining Useful Life (RUL), the units will require replacement during the evaluation period. The estimated cost of this work is included in the Replacement Reserves Report.
- The boilers appear to be in good condition and will require routine maintenance during the evaluation period.
- The expansion tanks appear to be in good condition and will require routine maintenance during the evaluation period.

- The fuel oil pump set appears to be in good condition and will require routine maintenance during the evaluation period.
- The circulating pumps appear to be in good condition. Based on their estimated Remaining Useful Life (RUL), the circulating pumps will require replacement during the evaluation period. The estimated cost of this work is included in the Replacement Reserves Report.
- The underground 10,000-gallon storage tank could not be directly observed and is reported to be in good condition. Based on its estimated Remaining Useful Life (RUL), the UST will require replacement during the evaluation period. The estimated cost of this work is included in the Replacement Reserves Report.
- The finned-tube radiant heat units appear to be in good to fair condition. Based on the estimated Remaining Useful Life (RUL), some of the finned-tube radiant heat units will require replacement during the evaluation period. The estimated cost of this work is included in the Replacement Reserves Report.
- The air handling units appear to be in good to fair condition. Based on their estimated Remaining Useful Life (RUL) and condition, the air handling units will require replacement during the evaluation period. The estimated cost of this work is included in the Replacement Reserves Report.
- The classroom fan coil units appear to be in good condition. Based on their estimated Remaining Useful Life (RUL), the classroom fan coil units will require replacement during the evaluation period. The estimated cost of this work is included in the Replacement Reserves Report.
- The rooftop air-cooled liquid chillers appear to be in good condition. Based on their estimated Remaining Useful Life (RUL) and condition, the two air-cooled liquid chillers will require replacement during the evaluation period. The estimated cost of this work is included in the Replacement Reserves Report.
- The condensing units and fan coil units appear to be in fair condition. Based on their estimated Remaining Useful Life (RUL) and condition, the condensing units and fan coil units will require replacement during the evaluation period. The estimated cost of this work is included in the Replacement Reserves Report.
- The ceiling-mounted unit heaters appear to be in good condition. Routine maintenance will be required during the evaluation period.
- The electric baseboard heaters appear to be in good condition. Routine maintenance will be required during the evaluation period.
- The two rooftop chillers are placed on top of a metal dunnage system. There is isolated paint deterioration occurring at each dunnage system. In order to prevent rusting and further deterioration of paint at each metal dunnage system, an immediate program of scraping and painting will be required. The estimated cost of this work is included in the Replacement Reserves Report.
- See Section 7.2 in regards to ACM.
- The mechanical ventilation system and equipment appear to be in good to fair condition. According to the client provided JMOA five year capital plan, additional ventilation is required at the indoor play area. The installation of a makeup air unit may satisfy this requirement. A budgetary cost allowance for this work is included in the Replacement Reserves Report. Based on their estimated Remaining Useful Life (RUL) and condition, exhaust fan replacement work is anticipated during the evaluation period. The estimated cost of this work is included in the Replacement Reserves Report.

Sustainable Recommendations:

- A sustainable recommendation for HVAC is to pursue the installation of a central air-conditioning system. This would reduce energy consumption by eliminating the use of small, less efficient split-system air-conditioning units.

- An additional sustainable recommendation for HVAC is to replace the air handling units with modern air handlers, which include economizer modes and a centralized exhaust air system with an enthalpy wheel. This would reduce energy consumption by managing the amount of energy used in ventilating the areas supplied by the air handling units.
- An additional sustainable recommendation for HVAC is to equip the circulating pumps with high efficiency motors to reduce energy consumption.

7.2. BUILDING PLUMBING

The plumbing systems include the incoming water service, the cold water piping system, and the sanitary sewer and vent system. The risers and the horizontal distribution piping are reported to be copper. The sanitary sewer and vent systems are reported to be cast iron.

The water meter is located in a vault adjacent to the street.

Domestic hot water is supplied by one, gas-fired boiler. The boiler has a nominal rated input capacity of 399 MBH and is located in the basement boiler room. The domestic hot water system consists of circulating pumps, expansion tank and a nominal 1,000-gallon, insulated storage tank.

The common area restrooms have commercial-grade fixtures and accessories, including water closets, urinals, and lavatories. Drinking fountains are located in the corridors and gymnasium.

The vast majority of the classrooms are equipped with a stainless steel sink and faucet. Fifteen classrooms are equipped with a toilet.

Observations/Comments:

- The plumbing system appears to be well maintained and in good condition. The water pressure appears to be adequate. The plumbing system will require routine maintenance during the evaluation period.
- There is no evidence that the property uses polybutylene piping for the domestic water distribution system. According to the POC, polybutylene piping is not used at the property.
- The pressure and quantity of hot water appear to be adequate.
- The boiler and storage tank appear to be in good condition, requiring routine maintenance during the evaluation period.
- According to the client provided AHERA document flooring with asbestos-containing material is located in the majority of the classrooms, restrooms, and corridors. There is suspect asbestos pipe (ACM) fitting insulation, duct insulation and vibration isolation cloth located in the building. The property does have an O&M plan in place and has inspections every three years on the ACM in the building. The last AHERA Inspection conducted at the property was on December 15, 2006. The report found ACM on pipe fitting insulation at the storage room 1, mechanical rooms 1 and 2, cafeteria storage, gym storage, custodian room, custodian work room, and grounds maintenance; ACM found on the duct insulation at the kitchen and mechanical rooms 1 and 2; ACM found on vibration isolation cloth at the emergency generator room and mechanical room 2. The report found all areas friable and intact, except at the gym storage room where fittings were damaged. It is recommended that the damaged asbestos pipe (ACM) fitting insulation be repaired or removed within the year. Remediation of all Suspect ACM is recommended by personnel specifically trained in the handling of hazardous materials. The estimated cost of this work is included in the Replacement Reserves Report. This allowance is based solely on the information presented in the client provided AHERA document. An excerpt of this AHERA document is included in the appendices. Identifying asbestos-containing material is not within the scope of this facility condition assessment.

- The accessories and fixtures in the restrooms are in good to fair condition. Based on the estimated Remaining Useful Life (RUL) and condition, the restroom fixtures will require replacement during the evaluation period. The estimated cost of this work is included in the Replacement Reserves Report.
- The drinking fountains are in good to fair condition. Based on the estimated Remaining Useful Life (RUL) and condition, the drinking fountains will require replacement during the evaluation period. The estimated cost of this work is included in the Replacement Reserves Report.

Sustainable Recommendations:

- A sustainable recommendation for plumbing is to replace the restroom fixtures with water-saving devices, such as low-flow faucet aerators and low-flush volume toilets and urinals.

7.3. BUILDING GAS DISTRIBUTION

Gas service is supplied from the gas main on the adjacent public street. The gas meter and regulator are located in the basement gas meter room. The gas distribution piping within the building is malleable steel (black iron).

Observations/Comments:

- The pressure and quantity of gas appear to be adequate.
- The gas meter and regulator appear to be in good condition and will require routine maintenance during the evaluation period.
- Only limited observation of the gas distribution piping can be made due to hidden conditions. The gas piping is in good condition and, according to the POC, there have been no gas leaks.

Sustainable Recommendations:

- There are no sustainable recommendations for gas distribution.

7.4. BUILDING ELECTRICAL

The electrical supply lines run underground to a pad-mounted transformer that feed the interior-mounted electrical meter.

The main electrical service size is 2,000-Amps, 120/208-Volt, three-phase, four-wire, alternating current (AC). The electrical wiring is reportedly copper, installed in metallic conduit. Circuit breaker panels are located throughout the building.

The building is equipped with a public address and intercom system, which allows communication between the main office and each classroom. The public address control unit is located in the main office and the system equipment is located in the closet at classroom 45. The cafeteria/auditorium is equipped with a stage lighting system and a sound system.

A diesel-powered, 45 kW, emergency generator is located in a room adjacent to the basement mechanical room. The generator provides back-up power for elements of the fire and life safety systems. The fuel tank is an aboveground 250-gallon tank located in the basement mechanical room, in close proximity to the generator.

Observations/Comments:

- The on site electrical systems are owned and maintained by the utility company. This includes transformers, meters, and all elements of the on site systems.
- The electrical power appears to be adequate for the property's demands.
- The switchgear, circuit breaker panels, and electrical meter appear to be in good condition and will require routine maintenance during the evaluation period.
- The public address system appears to be in good condition. Based on its estimated Remaining Useful Life (RUL), the public address system will require replacement during the evaluation period. The estimated cost of this work is included in the Replacement Reserves Report.
- According to the client provided JMOA five year capital plan, additional electrical outlets are required in the auditorium and cafeteria. Classroom technology upgrades are also required. A budgetary cost allowance for this work is included in the Replacement Reserves Report.
- The auditorium lighting system appears to be in good condition and will require routine maintenance during the evaluation period.
- The auditorium sound system appears to be in good condition and will require routine maintenance during the evaluation period.
- The generator is in fair condition and is reportedly tested on a weekly basis. Based on its estimated Remaining Useful Life (RUL) and condition, the generator will require replacement during the evaluation period. The estimated cost of this work is included in the Replacement Reserves Report.

Sustainable Recommendations:

- A sustainable recommendation for building electrical is to install occupancy sensors in place of light switches at the bathrooms.
- An additional sustainable recommendation for building electrical is to install high-efficiency fluorescent light fixtures or LED fixtures in place of older, less efficient fluorescent fixtures and incandescent.

7.5. ELEVATORS AND CONVEYING SYSTEMS

There is one hydraulic, passenger elevator. The elevator was manufactured by Esco Elevator. The elevator has a rated capacity of 2,000 pounds and a speed of 125 feet per minute. The elevator machinery is located in the basement mechanical room adjacent to the base of the shaft.

The elevator cab has vinyl-tiled floors, plastic-laminated wood wall panels, and recessed, ceiling light fixtures. The doors are fitted with electronic safety stops. Emergency communication equipment is not provided in the cab.

Observations/Comments:

- The elevator, and its responsiveness, appears to be adequate. The elevator is serviced by Northeast Elevator on a routine basis. The elevator machinery and controls are the originally installed system. Based on its estimated Remaining Useful Life (RUL), the elevator equipment will require replacement during the evaluation period. The estimated cost of this work is included in the Replacement Reserves Report.
- The elevator is inspected on an annual basis by the municipality, and a certificate of inspection is on displayed in the elevator cab.

- The finishes in the elevator cab appears to be in good condition. Based on their estimated Remaining Useful Life (RUL), some of the cab finishes will require replacement during the evaluation period. The cost to replace the finishes is relatively insignificant and the work can be performed as part of the Physical Plant's routine maintenance program. The estimated cost of this work is not included in the cost tables.

Sustainable Recommendations:

- A sustainable recommendation for the elevator is to equip the hydraulic pumps with high efficiency motors to reduce energy consumption.

7.6. FIRE PROTECTION SYSTEMS

The fire protection systems consist of a wet-pipe (majority of building) sprinkler system and dry-pipe (boiler room) sprinkler system, portable fire extinguishers, smoke detectors, pull stations, and alarm horns. Siamese connections are located on the exterior of the building. Hardwired smoke detectors are located throughout the common areas. The nearest fire hydrants are located along the property's drive aisles and are approximately 75 feet from the building.

Common areas and corridors are equipped with battery back-up exit lights, illuminated exit signs, pull stations, alarm horns, and strobe light alarms.

Fire sprinkler risers are located at the custodial office/ break room area. The system is equipped with a backflow preventer.

A central fire alarm panel is located in the basement mechanical room and monitors the pull stations, smoke detectors, and flow switches. An annunciator panel is located in the entrance vestibule. The alarm panel also sounds the alarm and automatically notifies the monitoring service or the fire department in the event of trouble.

The commercial kitchen is equipped with a dry chemical fire extinguishing system. Fire suppression heads are located in the exhaust hoods above the cooking areas, and the chemical tank is mounted inside the hood.

The building is equipped with a security system, including motion sensors, door alarms and security cameras. The security panels are located at various locations throughout the building and are monitored by Sonitrol.

The walls of the fire stairwells are exposed masonry. The stairs discharge at the ground floor, directly to the exterior and to the interior space.

Observations/Comments:

- Information regarding fire department inspection information is included in Section **3.2.**
- The fire sprinklers appear to be in good condition and are inspected by a qualified contractor on a routine basis. The fire sprinklers will require routine maintenance during the evaluation period.
- The modular building is not equipped with an automatic sprinkler system for fire suppression. Installation of a complete fire suppression piped sprinkler system, throughout the modular building, is recommended as a life safety issue. The estimated cost of this work is included in the Replacement Reserves Report.
- Some recessed sprinkler heads in the corridor were found with a missing escutcheon and cover. Installing the fire sprinkler escutcheons and covers can be performed as part of the property management's routine maintenance program. The cost of this work is not included in the cost tables.

- The fire extinguishers are tested annually and appear to be in good condition. The fire extinguishers were tested and inspected within the last year.
- The pull stations and alarm horns appear to be in good condition and will require routine maintenance during the evaluation period.
- Smoke detector replacement is considered to be routine maintenance.
- Exit sign and emergency lighting are in fair condition. According to the client provided JMOA five year capital plan, replacement of exit signage and emergency lighting is required. A budgetary cost allowance for this work is included in the Replacement Reserves Report.
- The central alarm panel appears to be in good condition and is tested regularly by a qualified fire equipment contractor. Equipment testing is not within the scope of a Facilities Needs Assessment. Based on the estimated Remaining Useful Life (RUL), and because replacement parts and components for this type of equipment may be obsolete, the alarm panel will require replacement over the assessment period. The estimated cost of this work is included in the Replacement Reserves Report.
- The security panel appears to be in good condition. Equipment testing is not within the scope of a Facilities Needs Assessment.
- The overhead security gates at the courtyard entrance were reported always open during school hours. To prevent unauthorized personnel from entering these areas and ensure proper security for the students, it is recommended that the overhead door stays closed and is wired into the emergency system to automatically open during a fire or other emergency. EMG recommends these doors are equipped with panic hardware, installation of doors to swing out with egress and to always keep locked from the building exterior. This work can be performed as part of the property management's routine maintenance program. The cost of this work is not included in the cost tables.
- The fire suppression system equipment contains a failed 2nd Check Assembly inspected by Aquarion Water Company. Repair/replacement of the check assembly will be required. This work can be performed as part of the property management's routine maintenance program. The cost of this work is not included in the cost tables.
- The dry-chemical, fire suppression system appears to be in good condition and is tested regularly by a qualified fire equipment contractor. Routine maintenance will be required during the evaluation period.
- The exit stairwells appear to have been constructed in accordance with applicable codes in force at the time of construction. The stairwells appear to be in general compliance.
- The stairwell doors and door hardware are fire-rated. Components bearing certification labels are displayed on the doors.

Sustainable Recommendations:

- A sustainable recommendation for fire protection is to install Energy Star rated illuminated "LED" exit signs.

8. INTERIOR SPACES

8.1. INTERIOR FINISHES

The following table generally describes the interior finishes in units:

Typical Space Finishes			
Room	**Floor**	**Walls**	**Ceiling**
Classrooms	Vinyl composition tiles	Painted drywall and brick veneer	Suspended acoustic tiles or exposed structure
Maintenance Shop and Storage	Vinyl composition tiles and unfinished	Painted drywall, brick veneer and concrete	Suspended ceiling tiles, unfinished and painted drywall
Kitchens	Ceramic tile	CMU, ceramic tile and painted drywall	Painted drywall and suspended acoustic tiles
Restrooms	Ceramic tile	Painted drywall, painted CMU and ceramic tiles	Painted drywall

The interior doors within the classroom, kitchens, shops and restrooms are wood doors set in metal framing. The doors have cylindrical locksets with lever handle or knob handle hardware with keyed deadbolts.

Observations/Comments:

- The classrooms were partially renovated approximately ten years ago.
- The interior finishes in the classrooms are in good condition. The vinyl composition tiles in the classrooms are in good condition. Replacement is required. The estimated cost of this work is included in the Replacement Reserves Report. The tiles contain suspect ACM (Asbestos-containing Material). Due to these conditions replacement of the floor tiles is recommended. The estimated cost of this work is included in the Replacement Reserves Report. In 1986, the Asbestos Hazard Emergency Response Act (AHERA) was signed into law as Title II of the Toxic Substance Control Act (TSCA). Additionally, the Asbestos School Hazard Abatement Reauthorization Act (ASHARA) passed in 1990, required accreditation of personnel working on asbestos activities in schools. Specifically, Asbestos-Containing Materials in Schools (October 30, 1987 40CFR Part 763, Subpart E) outlines a detailed process that ensures the safe management of all asbestos-containing building materials (ACBM) by a designated person (DP) for a Local Education Agency (LEA). Additionally, the Asbestos School Hazard Abatement Reauthorization Act (ASHARA) passed in 1990, required accreditation of personnel working on asbestos activities in schools and public and commercial buildings. Specifically, the Asbestos Model Accreditation Plan (40 CFR Part 763, Appendix C) required the use of accredited inspectors, workers, supervisors, project designers, and management planners (schools only) when conducting asbestos activities at schools and public and commercial buildings.
- Interior painting will also be required during the evaluation period. The estimated cost of this work is included in the Replacement Reserves Report.

- There are numerous isolated areas of drywall and ceiling tiles throughout the building's classrooms which have water damage. The moisture is caused by HVAC condensate, existing and/or repaired roof leaks. The water stained finishes have not been replaced and require replacement. The cost to replace the damaged ceiling tiles is relatively insignificant and the work can be performed as part of the property management's routine maintenance program. The cost of this work is not included in the cost tables. The interior stairs will require routine maintenance during the evaluation period.
- Suspended ceiling tile are in fair to poor condition. There are numerous sections of warped tiles. The ceiling tiles will require replacement during the evaluation period. The estimated cost of this work is included in the Replacement Reserves Report.
- The interior doors are in good to fair condition requiring routine maintenance during the evaluation period.

Sustainable Recommendations:

- Sustainable recommendations for the interior finishes are to use low VOC paints, linoleum or cork flooring, and recycled material carpeting.

8.2. COMMERCIAL KITCHEN EQUIPMENT

The kitchen area has a variety of commercial kitchen appliances, fixtures, and equipment. The kitchen includes the following major appliances, fixtures, and equipment:

Appliance	Comment
Refrigerators	Walk-in (1), Chest (2)
Freezers	Walk-in (1)
Ranges	Gas
Ovens	Gas
Griddles/Grills	None
Fryers	Yes
Hood	Exhaust ducted to exterior
Dishwasher	Yes
Microwave	No
Ice Machines	No
Steam tables	Yes
Work tables	Stainless steel
Shelving	Stainless steel

Observations/Comments:

- The kitchen appliances appear to be in good condition. Based on their estimated Remaining Useful Life (RUL), some of the kitchen appliances will require replacement during the evaluation period. The estimated cost of this work is included in the Replacement Reserves Report.
- The refrigeration equipment appears to be in good condition. Based on their estimated Remaining Useful Life (RUL), some of the refrigeration units will require replacement during the evaluation period. The estimated cost of this work is included in the Replacement Reserves Report.

Sustainable Recommendations:

- A sustainable recommendation for the cooking equipment is to replace the appliances and refrigeration units with Energy Star rated or equivalent equipment.

8.3. HVAC

See Section 7.1 for building mechanical systems.

8.4. PLUMBING

Domestic water is supplied by the central system described in Section 7.2.

9. OTHER STRUCTURES

The modular building is a pre-manufactured wood and steel structure set on concrete piers and footings. The exterior walls of the modular addition are finished with painted T-1-11 and repaired sections of plywood over wood stud-framing. Building sealants (caulking) are located between dissimilar materials, at joints, and around window and door openings.

The roof deck is constructed of a corrugated metal deck topped with rigid insulation boards. The roof is finished with a single-ply EDPM membrane. The roofs have built-up base and edge flashing. The perimeter of the modular addition has wood cant strip and aluminum gravel stops. The roofs drain over the eaves onto paved and landscaped areas.

The windows are metal sliding units with exterior screens set in wood framing. The exterior stairs and ramps are constructed of pressure treated wood with open risers.

The interior is finished with vinyl laminated walls, vinyl flooring and suspended acoustical ceiling tiles. Interior doors in the modular addition are hollow core metal doors. These doors have cylindrical locksets with lever handle hardware. The classroom doors have wire glass vision panels.

An exterior wood ramps and stairs provide access to the modular addition. A wood railing and banister is provided at the exterior ramp. The addition is also connected to the main core building via interior corridors.

Heating, cooling, plumbing, gas, electrical and fire protection are described in Section 7.0.

Observations/Comments:

- The foundations and footings could not be directly observed during the site visit. There is no evidence of movement that would indicate excessive settlement.
- The superstructure is concealed. Walls and floors appear to be plumb, level, and stable. There are no significant signs of deflection or movement.
- The roof finishes are 13 years old and original. The roofs are not covered by a warranty. The roofs are maintained by an outside contractor and the in-house maintenance staff.
- The fields of the roofs are in fair to poor condition. Roof leaks have occurred within the past year; some of these leaks remain active. The leaks occur in classroom P4 and P5. All active leaks must be repaired. The estimated cost of this work is included in the Replacement Reserves Report. Based on the estimated Remaining Useful Life (RUL) and current condition, the roof membrane will require replacement. The estimated cost of this work is included in the Replacement Reserves Report.
- The wood siding and trim is in fair to poor condition. There are significant sections of moisture damage and weathered surfaces along the northern façade. In addition, the base paneling of the north elevation has been replaced with plywood as a temporary repair. Isolated sections of the siding are damaged and pulling from the stud framing. Based upon the age and condition, full replacement is recommended. The estimated cost of this work is included in the Replacement Reserves Report.
- In addition to these repairs, the exterior walls will require painting over the evaluation period. The estimated cost of this work is included in the Replacement Reserves Report.
- The wood stairs are in fair condition. There are three stairs with missing or ADA non-compliant handrails. The missing railings require replacement. The estimated cost of this work is included in the Replacement Reserves Report. In addition, one of the staircases is missing a post requiring routine maintenance repairs.

- There is no evidence of window leaks or window condensation. The windows are in good condition and will require routine maintenance during the assessment period.
- The interior finishes are in good to poor condition. Please refer to Sections 6.8 and 8.1 for associated comments and repair costs.

Sustainable Recommendations:

- There are no sustainable recommendations for foundations.
- There are no sustainable recommendations for superstructure.
- A sustainable recommendation for roofing is to replace the built-up roofs with a light colored single ply membrane.
- A sustainable recommendation for exterior finishes is to use low VOC sealant or caulking around exterior doors and windows and the paint finishes on the wood siding.
- A sustainable recommendation for doors is to replace with insulated, energy efficient doors.
- Sustainable recommendations for the interior finishes are to use low VOC paints, linoleum or cork flooring, and recycled material carpeting.

10. ENERGY BENCHMARKING

This Section is pending additional information from the client.

11. APPENDICES

APPENDIX A: Photographic Record

APPENDIX B: Site and Floor Plans

APPENDIX C: Supporting Documentation

APPENDIX D: EMG Abbreviated Accessibility Checklist

APPENDIX E: Pre-Survey Questionnaire and Documentation Request Checklist

APPENDIX F: Acronyms and Out of Scope Items

APPENDIX G: Resumes for Report Reviewer and Field Observer

APPENDIX A:
PHOTOGRAPHIC RECORD

EMG PHOTOGRAPHIC RECORD

Project No.: 88166.09R-005.017 **Project Name: Toquam Magnet Elementary School**

Photo #1:	East elevation along Ridgewood Avenue looking south

Photo #2:	East entrance elevation

Photo #3:	East elevation looking north

Photo #4:	South elevation looking west

Photo #5:	South elevation looking east

Photo #6:	South stairwell elevation

EMG PHOTOGRAPHIC RECORD

Project No.: 88166.09R-005.017 **Project Name: Toquam Magnet Elementary School**

Photo #7:	South entrance elevation

Photo #8:	South elevation

Photo #9:	West elevation looking north

Photo #10:	West elevation looking south

Photo #11:	West elevation courtyard entrance

Photo #12:	North end of west elevation

EMG PHOTOGRAPHIC RECORD

Project No.: 88166.09R-005.017 **Project Name: Toquam Magnet Elementary School**

Photo #13:	North elevation

Photo #14:	South side of modular building

Photo #15:	Modular building west end elevation

Photo #16:	North side of modular building looking east

Photo #17:	North side of modular building looking west

Photo #18:	East side entrance elevation of modular building

EMG PHOTOGRAPHIC RECORD

Project No.: 88166.09R-005.017 **Project Name: Toquam Magnet Elementary School**

Photo #19:	North entrance elevation

Photo #20:	North side courtyard entrance

Photo #21:	North elevation

Photo #22:	Single-ply membrane roof overview

Photo #23:	Roof clerestory

Photo #24:	Built-up roof overview

EMG PHOTOGRAPHIC RECORD

Project No.: 88166.09R-005.017 **Project Name: Toquam Magnet Elementary School**

Photo #25:	Built-up roof clerestory and worn section

Photo #26:	Modular building roof overview

Photo #27:	Interior courtyard elevation

Photo #28:	Interior courtyard elevation and curtain wall

Photo #29:	Courtyard playground

Photo #30:	Entrance lobby

EMG PHOTOGRAPHIC RECORD

Project No.: 88166.09R-005.017 **Project Name: Toquam Magnet Elementary School**

Photo #31:	Entrance lobby vestibule

Photo #32:	Main office reception desk

Photo #33:	Staff mail center

Photo #34:	Assistant Principal's office

Photo #35:	Typical corridor showing warped ceiling tiles requiring replacement

Photo #36:	Staff and general meeting room

EMG PHOTOGRAPHIC RECORD

Project No.: 88166.09R-005.017 **Project Name: Toquam Magnet Elementary School**

Photo #37:	Old classroom computers

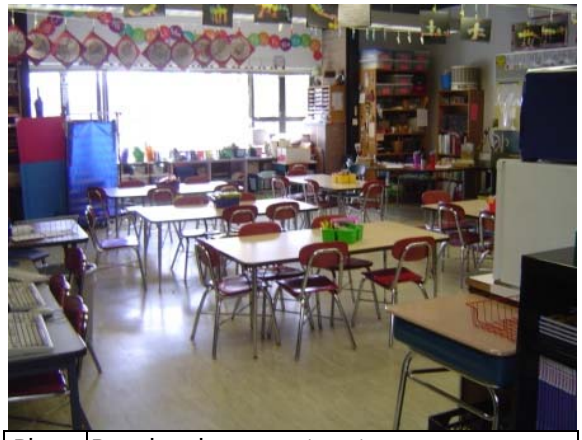


Photo #38:	Regular classroom interior

Photo #39:	New classroom computers

Photo #40:	Sink, under counter shelves and project table within typical classroom

Photo #41:	Book, clothing and classroom storage area for typical classroom

Photo #42:	Typical restroom within classroom

EMG PHOTOGRAPHIC RECORD

Project No.: 88166.09R-005.017 **Project Name: Toquam Magnet Elementary School**

Photo #43:	Title 1 classroom

Photo #44:	Lower level indoor kindergarten play area

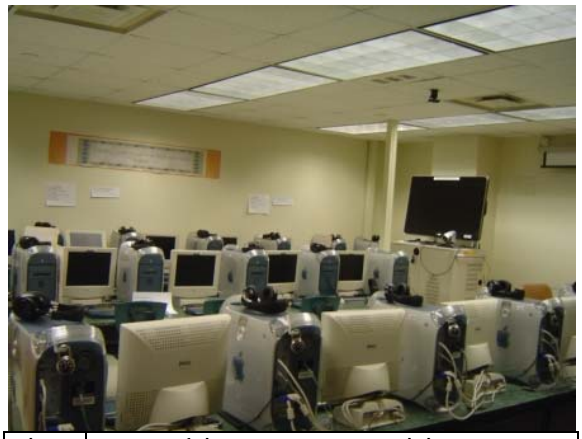


Photo #45:	Larger of the two computer laboratories

Photo #46:	Maintenance garage

Photo #47:	Maintenance corridor requiring cleaning

Photo #48:	Sump pump in classrooms along the east perimeter

EMG PHOTOGRAPHIC RECORD

Project No.: 88166.09R-005.017 **Project Name: Toquam Magnet Elementary School**

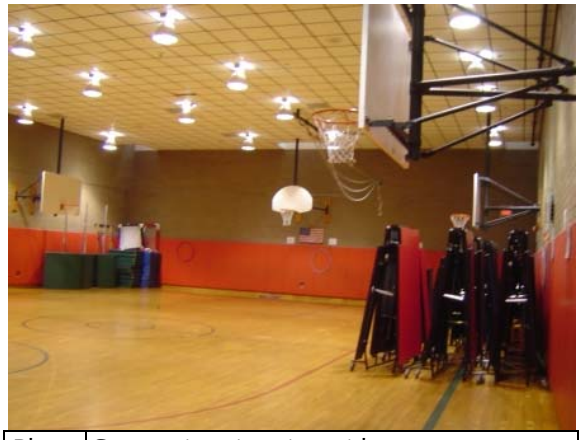


Photo #49:	Gymnasium interior with sports equipment

Photo #50:	Cafeteria/auditorium

Photo #51:	Folded lunch tables in gymnasium utilized by cafeteria

Photo #52:	Serving and payment equipment in cafeteria

Photo #53:	Roof clerestory covers potential source of water intrusion

Photo #54:	Framed skylights with reported water leaks

EMG PHOTOGRAPHIC RECORD

Project No.: 88166.09R-005.017 **Project Name: Toquam Magnet Elementary School**

Photo #55:	Drainage path to sump pump

Photo #56:	Water intrusion through slab pipe penetrations in boiler room

Photo #57:	Water intrusion through slab in boiler room

Photo #58:	Water intrusion through slab and wall base in boiler room

Photo #59:	Water intrusion into electrical mains room

Photo #60:	Water intrusion into electrical generator room

EMG PHOTOGRAPHIC RECORD

Project No.: 88166.09R-005.017 **Project Name: Toquam Magnet Elementary School**

Photo #61:	Efflorescence on generator room foundation wall

Photo #62:	Suspect mold growth on air handling pipe insulation

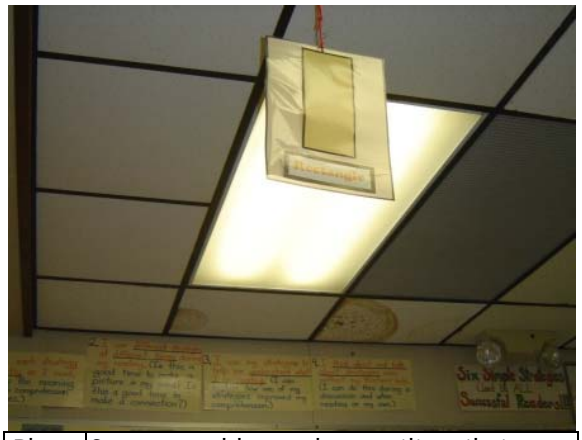


Photo #63:	Suspect mold growth on ceiling tile in classroom P4

Photo #64:	Suspect mold growth on ceiling tile in classroom P3

Photo #65:	Suspect mold growth on ceiling tile in classroom P4

Photo #66:	Water stained ceiling tile in modular building

EMG PHOTOGRAPHIC RECORD

Project No.: 88166.09R-005.017 **Project Name: Toquam Magnet Elementary School**

Photo #67:	Typical warped ceiling tiles in corridor requiring replacement

Photo #68:	Suspect mold growth on corridor ceiling tiles adjacent to classroom 33

Photo #69:	Water stained drywall in clerestory window

Photo #70:	Sink requires replacement per ADA

Photo #71:	Restroom requiring ADA modifications

Photo #72:	Missing cup dispenser per ADA requirements

EMG PHOTOGRAPHIC RECORD

Project No.: 88166.09R-005.017 **Project Name: Toquam Magnet Elementary School**

Photo #73:	Handrail extensions required per ADA requirements

Photo #74:	ADA lever handles required on interior doors

Photo #75:	Typical fountain requiring ADA cane detection

Photo #76:	Water intrusion through window of the main office

Photo #77:	Non-compliant elevator control panel

Photo #78:	Non-compliant elevator cab

EMG PHOTOGRAPHIC RECORD

Project No.: 88166.09R-005.017 **Project Name: Toquam Magnet Elementary School**

Photo #79:	Non-compliant elevator call button

Photo #80:	Down classroom 52 under renovations

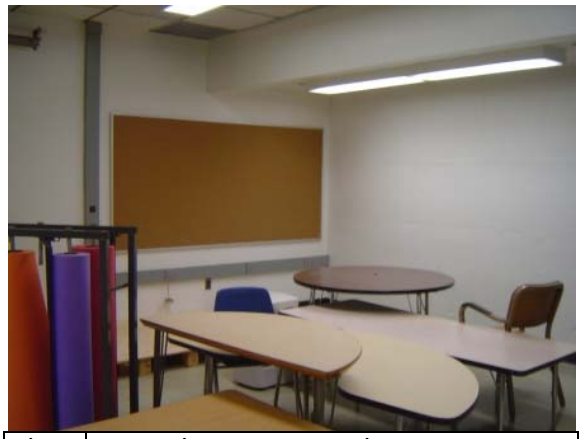


Photo #81:	Down classroom 52 under renovations

Photo #82:	Cracked floor tile in modular building

Photo #83:	Typical vinyl composition tile in classroom

Photo #84:	Vinyl composition tile in entrance lobby

EMG PHOTOGRAPHIC RECORD

Project No.: 88166.09R-005.017 **Project Name: Toquam Magnet Elementary School**

Photo #85:	Non compliant ADA ramp in media center

Photo #86:	Spalling pavement in west courtyard entrance

Photo #87:	Water intrusion into gymnasium from exterior wall base leaks

Photo #88:	Spalling courtyard pavement and area of water intrusion into cafeteria and gym

Photo #89:	Spalling courtyard pavement, damaged wall stucco and worn spandrel panels

Photo #90:	Settled perimeter pavement allowing for water intrusion

EMG PHOTOGRAPHIC RECORD

Project No.: 88166.09R-005.017 **Project Name: Toquam Magnet Elementary School**

Photo #91:	Broken concrete in courtyard and perimeter wall to base water intrusion

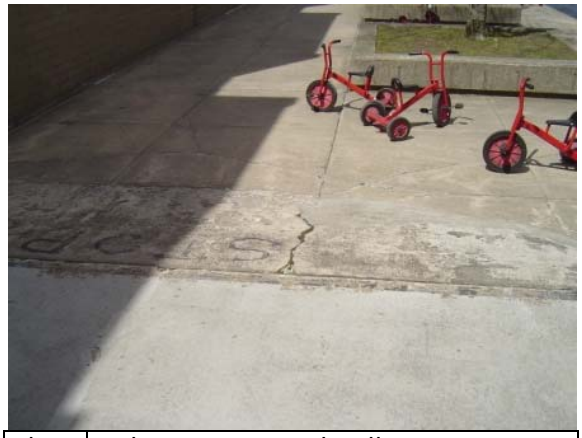


Photo #92:	Broken concrete and wall to pavement base allowing for water intrusion

Photo #93:	Peeling factory finish of spandrel panel

Photo #94:	Curtain wall worn and corroding factory finish

Photo #95:	Potential safety hazard within playground

Photo #96:	Playground ADA ramp requiring top level landing area

EMG PHOTOGRAPHIC RECORD

Project No.: 88166.09R-005.017 **Project Name: Toquam Magnet Elementary School**

Photo #97:	Close-up of wall crack accounting for water intrusion

Photo #98:	Area of water intrusion along north courtyard entrance perimeter wall

Photo #99:	Retaining wall and handrails requiring repairs

Photo #100:	Exit staircase requiring proper handrails

Photo #101:	Exit staircase requiring post repair

Photo #102:	Exit staircase requiring proper handrails

EMG PHOTOGRAPHIC RECORD

Project No.: 88166.09R-005.017 **Project Name: Toquam Magnet Elementary School**

Photo #103:	Modular building base panels requiring replacement due to water damage

Photo #104:	Missing handrails on ADA ramp of modular building

Photo #105:	Mildew growth and effervescence on brick veneer along the west elevation

Photo #106:	Modular building peeling window frame

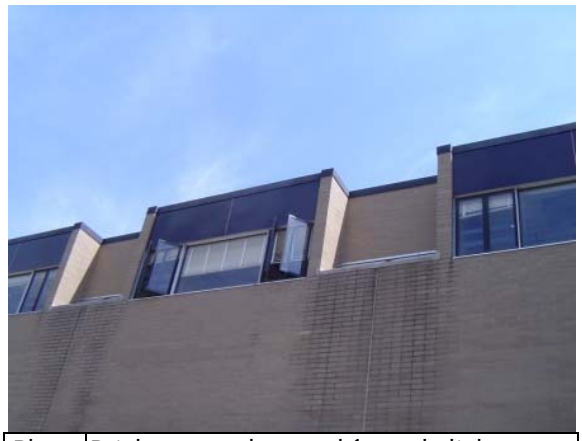


Photo #107:	Brick veneer damaged from skylight drainage

Photo #108:	Damaged stucco finish on maintenance garage elevation

EMG PHOTOGRAPHIC RECORD

Project No.: 88166.09R-005.017 **Project Name: Toquam Magnet Elementary School**

Photo #109:	Exterior area of water intrusion into generator room

Photo #110:	West side courtyard entrance retaining wall requiring repairs

Photo #111:	Intra-building exit stairwell exterior wall requiring pointing

Photo #112:	West perimeter requiring fence installation for children safety

Photo #113:	Close-up of stairwell exterior wall

Photo #114:	Failed caulk joints on Intra-building walkway canopy and broken veneer

EMG PHOTOGRAPHIC RECORD

Project No.: 88166.09R-005.017 **Project Name: Toquam Magnet Elementary School**

Photo #115:	Corroding steel framing on Intra-building walkway canopy

Photo #116:	Corroding steel framing on Intra-building walkway canopy

Photo #117:	Impact damage on Intra-building walkway canopy plexiglass panels

Photo #118:	Resulting steel corrosion from failed canopy caulk joints

Photo #119:	Corroding steel framing on Intra-building walkway canopy

Photo #120:	Water damaged brick veneer along ceiling within staircase

EMG PHOTOGRAPHIC RECORD

Project No.: 88166.09R-005.017 **Project Name: Toquam Magnet Elementary School**

Photo #121:	Spalling stucco finish of staircase wall within staircase

Photo #122:	Water damaged brick veneer along landing within staircase

Photo #123:	Water damaged finishes in stairwell

Photo #124:	Peeling factory finish of spandrel panel

Photo #125:	Close-up of brittle caulking around building windows

Photo #126:	Peeling factory finish of window spandrel panel

EMG PHOTOGRAPHIC RECORD

Project No.: 88166.09R-005.017 **Project Name: Toquam Magnet Elementary School**

Photo #127:	Main property entrance drive off Ridgewood Road (missing property signage)

Photo #128:	Front elevation of building and building identification signage

Photo #129:	Parking lot at front of building

Photo #130:	Parking at rear of building (west elevation)

Photo #131:	Parking at rear of building (south elevation)

Photo #132:	Parking and basketball play court area at rear of building (adjacent to Dolan)

EMG PHOTOGRAPHIC RECORD

Project No.: 88166.09R-005.017 **Project Name: Toquam Magnet Elementary School**

Photo #133:	Service drive leading to loading dock at rear of building

Photo #134:	Accessible parking at front of building (east elevation)

Photo #135:	Asphalt deterioration at front parking lot

Photo #136:	Asphalt deterioration at front parking lot

Photo #137:	Asphalt deterioration at front parking lot

Photo #138:	Alligator cracking at asphalt at front parking lot

EMG PHOTOGRAPHIC RECORD

Project No.: 88166.09R-005.017 **Project Name: Toquam Magnet Elementary School**

Photo #139:	Asphalt deterioration at rear parking and basketball courts

Photo #140:	Concrete sidewalk condition at front of building

Photo #141:	Concrete sidewalk condition at main school entrance

Photo #142:	Asphalt sidewalk adjacent to playground play area

Photo #143:	Asphalt sidewalk adjacent to modular building

Photo #144:	Asphalt sidewalk condition at the rear of the building

EMG PHOTOGRAPHIC RECORD

Project No.: 88166.09R-005.017 **Project Name: Toquam Magnet Elementary School**

Photo #145:	Concrete sidewalk condition at front of the building

Photo #146:	Settled concrete sidewalk – trip hazard at front of building

Photo #147:	Asphalt overlay on concrete sidewalk at front of building – deterioration at asphalt

Photo #148:	Asphalt overlay on concrete sidewalk at front of building – notice deterioration

Photo #149:	Asphalt sidewalk deterioration adjacent to parking area

Photo #150:	Asphalt sidewalk deterioration at rear of building

EMG PHOTOGRAPHIC RECORD

Project No.: 88166.09R-005.017 **Project Name: Toquam Magnet Elementary School**

Photo #151:	Asphalt sidewalk deterioration at rear of building

Photo #152:	Concrete curbing condition along front drive lane

Photo #153:	Asphalt curbing along rear service drive

Photo #154:	Shifting concrete curbing at front parking lot

Photo #155:	Shifting concrete curbing adjacent to front steps and drain inlet

Photo #156:	Concrete curbing deterioration at front of building

EMG PHOTOGRAPHIC RECORD

Project No.: 88166.09R-005.017 **Project Name: Toquam Magnet Elementary School**

Photo #157:	Displaced asphalt curbing at rear of building

Photo #158:	Asphalt curbing deterioration at rear of building

Photo #159:	Concrete steps and railings at front parking lot

Photo #160:	Recommend installing concrete steps at rear leading to front main entrance (southeast corner of building)

Photo #161:	Stone masonry retaining wall at rear elevation

Photo #162:	Timber retaining wall at playground area

EMG PHOTOGRAPHIC RECORD

Project No.: 88166.09R-005.017 **Project Name: Toquam Magnet Elementary School**

Photo #163:	Wood pole light at front parking area

Photo #164:	Building-mounted and soffit light fixtures at front elevation

Photo #165:	Chain link fencing at play field area

Photo #166:	Chain link at playground area

Photo #167:	Courtyard play equipment

Photo #168:	Play equipment at right side of building

EMG PHOTOGRAPHIC RECORD

Project No.: 88166.09R-005.017 **Project Name: Toquam Magnet Elementary School**

Photo #169:	Play field adjacent to modular building

Photo #170:	Condition of basketball backstop

Photo #171:	Dumpster at rear of building – note displaced asphalt curbing

Photo #172:	Rooftop package units for modular classrooms

Photo #173:	Rooftop package units for modular classrooms

Photo #174:	Rooftop chiller unit (1 of 2)

EMG PHOTOGRAPHIC RECORD

Project No.: 88166.09R-005.017 **Project Name: Toquam Magnet Elementary School**

Photo #175:	Rooftop condensing unit for computer labs

Photo #176:	Rooftop condensing unit for office

Photo #177:	Hot water heating boilers

Photo #178:	Underground 10,000-gallon fuel oil storage tank at rear of building

Photo #179:	Boiler expansion tanks

Photo #180:	Hot water circulating pumps

EMG PHOTOGRAPHIC RECORD

Project No.: 88166.09R-005.017 **Project Name: Toquam Magnet Elementary School**

Photo #181:	Chilled water circulating pumps

Photo #182:	Cabinet radiant unit at classroom

Photo #183:	Recessed cabinet radiant unit at corridor

Photo #184:	Air handling unit (AHU-7)

Photo #185:	Air handling unit (AHU-8)

Photo #186:	Air handling unit (AHU-9)

EMG PHOTOGRAPHIC RECORD

Project No.: 88166.09R-005.017 **Project Name: Toquam Magnet Elementary School**

Photo #187:	Air handling unit (AHU-10)

Photo #188:	Air handling unit (AHU-3)

Photo #189:	Fan coil unit at classroom

Photo #190:	Exposed ducting and supply diffusers in classroom

Photo #191:	Ceiling-mounted unit heater at mechanical room

Photo #192:	Electric baseboard heaters at modular building corridor

EMG PHOTOGRAPHIC RECORD

Project No.: 88166.09R-005.017 **Project Name: Toquam Magnet Elementary School**

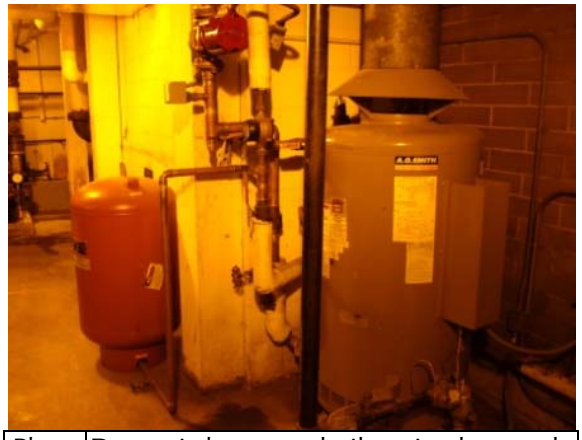


Photo #193:	Domestic hot water boiler, circulator and expansion tank

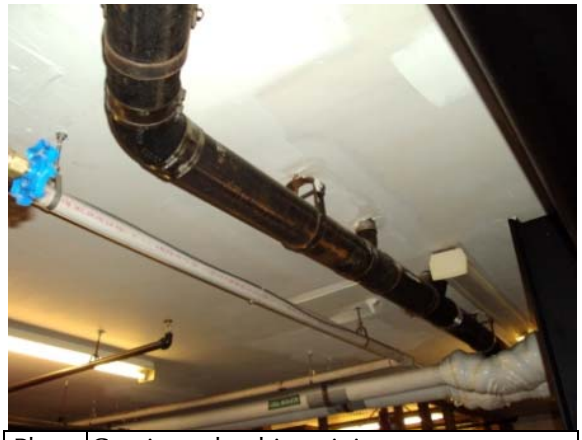


Photo #194:	Cast iron plumbing piping

Photo #195:	Common area drinking fountain

Photo #196:	Overview of common area restroom

Photo #197:	Common area restroom lavatory sinks

Photo #198:	Boys common area restroom urinals

EMG PHOTOGRAPHIC RECORD

Project No.: 88166.09R-005.017 **Project Name: Toquam Magnet Elementary School**

Photo #199:	Floor-mounted toilet at restroom

Photo #200:	Classroom sink

Photo #201:	Suspect ACM in Gym storage

Photo #202:	Gas metering

Photo #203:	Pad-mounted transformer at rear of building

Photo #204:	Main electrical switchgear in basement

EMG PHOTOGRAPHIC RECORD

Project No.: 88166.09R-005.017 **Project Name: Toquam Magnet Elementary School**

Photo #205:	Electric meter at main electrical room

Photo #206:	Circuit breaker panel

Photo #207:	Cafeteria/auditorium audio control panel

Photo #208:	School PA system equipment in closet at classroom 45

Photo #209:	PA system call button and speaker in classroom, adjacent to clock

Photo #210:	Emergency generator in basement

EMG PHOTOGRAPHIC RECORD

Project No.: 88166.09R-005.017 **Project Name: Toquam Magnet Elementary School**

Photo #211:	Generator storage tank in basement

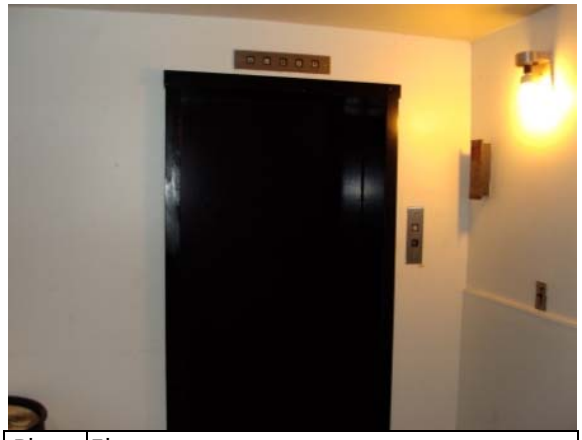


Photo #212:	Elevator

Photo #213:	Elevator hydraulic machinery and controls in basement

Photo #214:	Stage requiring a wheelchair lift for accessibility

Photo #215:	Central fire alarm panel in basement mechanical room

Photo #216:	Main fire suppression system at custodial room

EMG PHOTOGRAPHIC RECORD

Project No.: 88166.09R-005.017 **Project Name: Toquam Magnet Elementary School**

Photo #217:	fire suppression backflow preventer

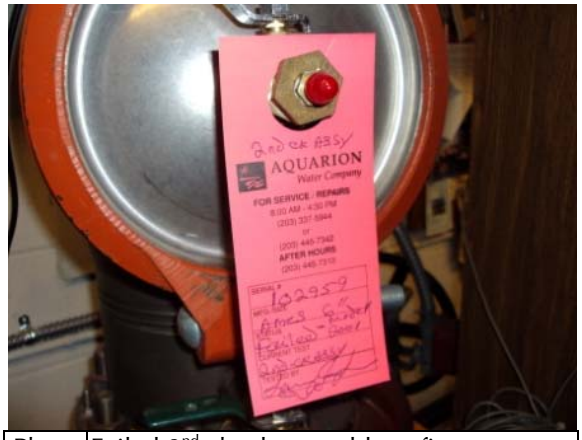


Photo #218:	Failed 2nd check assembly at fire suppression equipment

Photo #219:	Fire hydrant along drive lane

Photo #220:	Siamese hose connection at building exterior wall

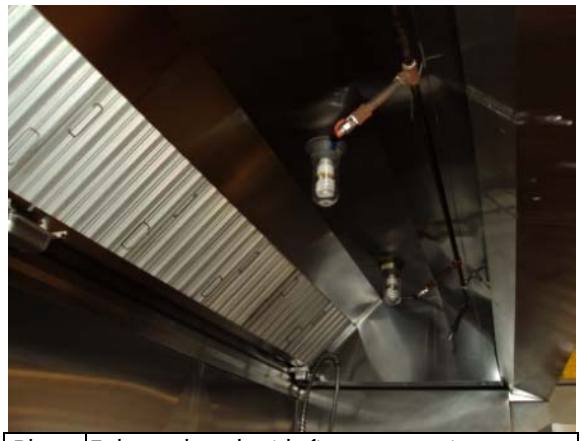


Photo #221:	Exhaust hood with fire suppression

Photo #222:	Ansul system inside kitchen hood

EMG PHOTOGRAPHIC RECORD

Project No.: 88166.09R-005.017 **Project Name: Toquam Magnet Elementary School**

Photo #223:	Cabinet-mounted fire extinguisher

Photo #224:	Illuminated exit sign and sprinkler head – note missing escutcheon and cover

Photo #225:	Fire pull station and strobe alarm

Photo #226:	Illuminated exit sign, smoke detector, strobe alarm and emergency lights at modular building

Photo #227:	Modular classroom without fire sprinkler heads

Photo #228:	Security alarm panel in closet by roof ladder

EMG PHOTOGRAPHIC RECORD

Project No.: 88166.09R-005.017 **Project Name: Toquam Magnet Elementary School**

Photo #229:	Open overhead security gates leading to children play area

Photo #230:	Kitchen gas range

Photo #231:	Kitchen gas ovens

Photo #232:	Walk in freezer and refrigerator at kitchen

Photo #233:	Chest cooler in kitchen

Photo #234:	Reach-in refrigerator

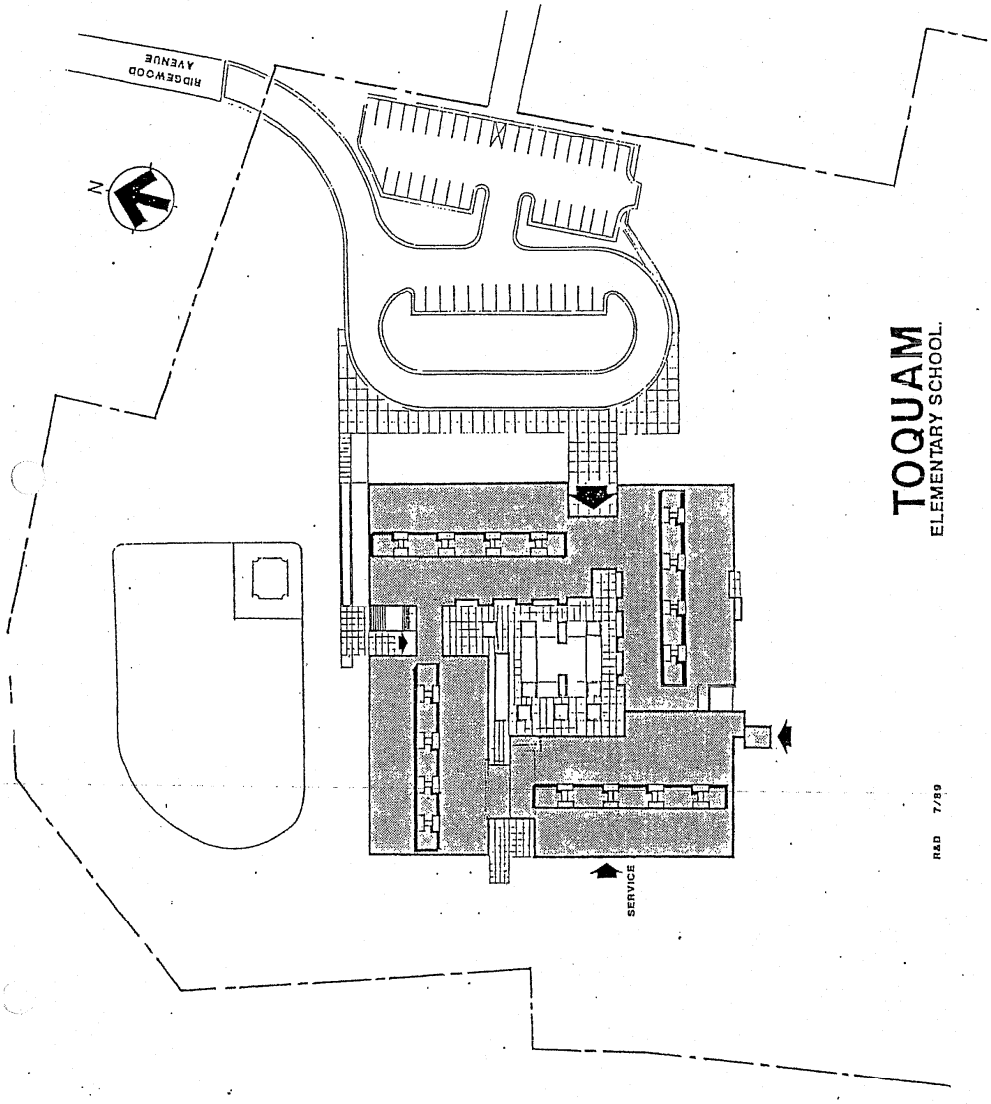
EMG PHOTOGRAPHIC RECORD

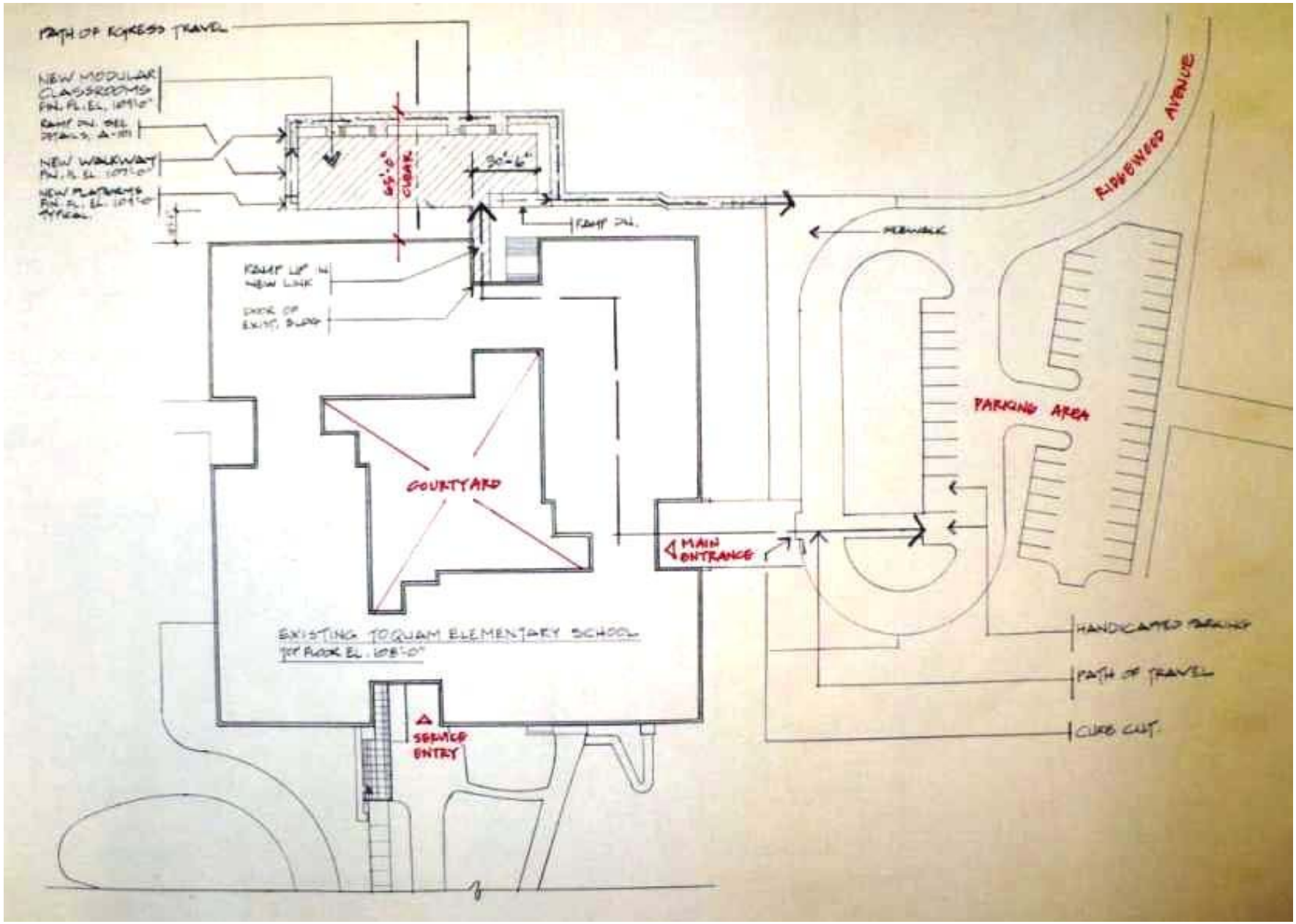
Project No.: 88166.09R-005.017 **Project Name: Toquam Magnet Elementary School**

Photo #235:	Dishwasher

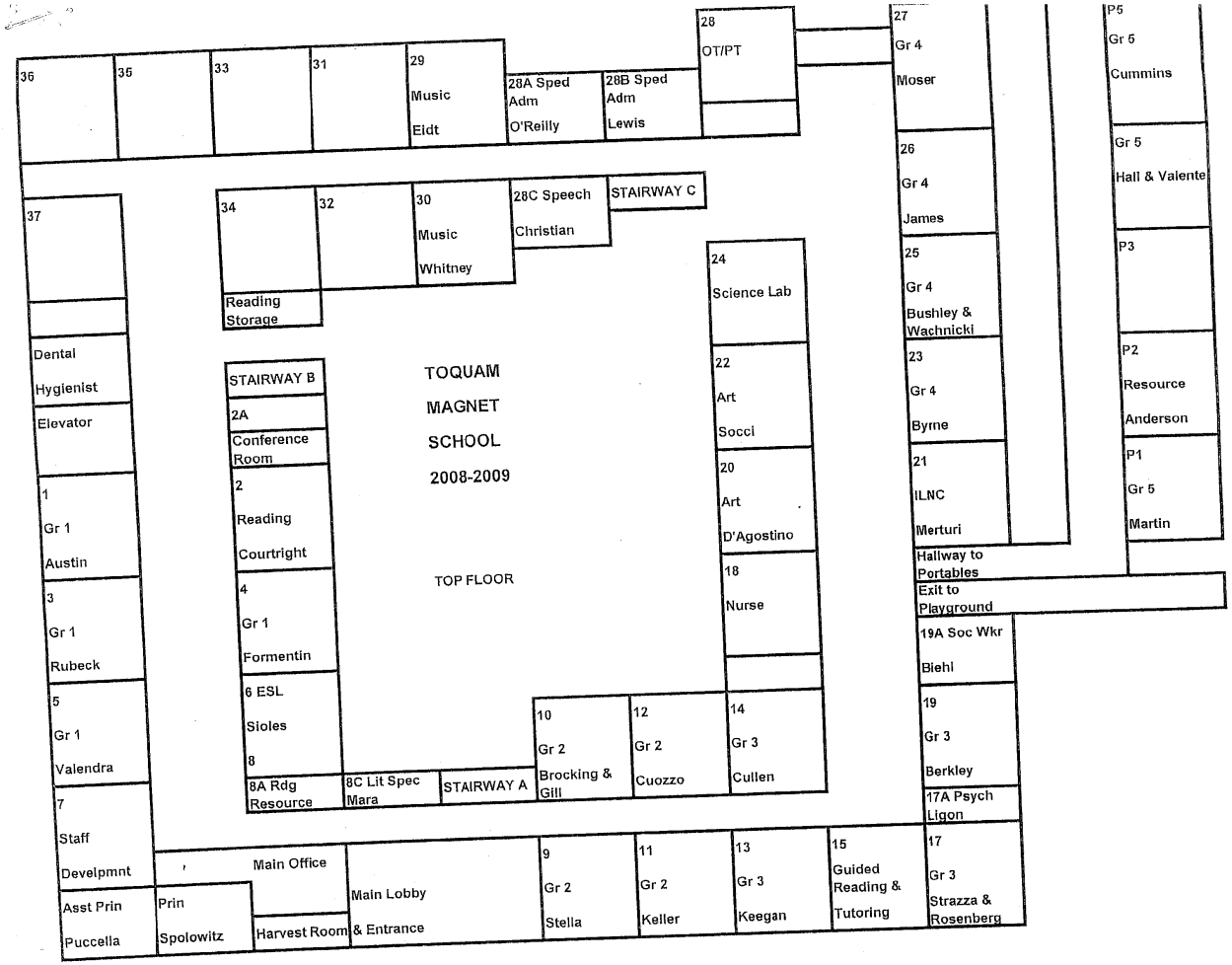
Photo #236:	Kitchen shelving

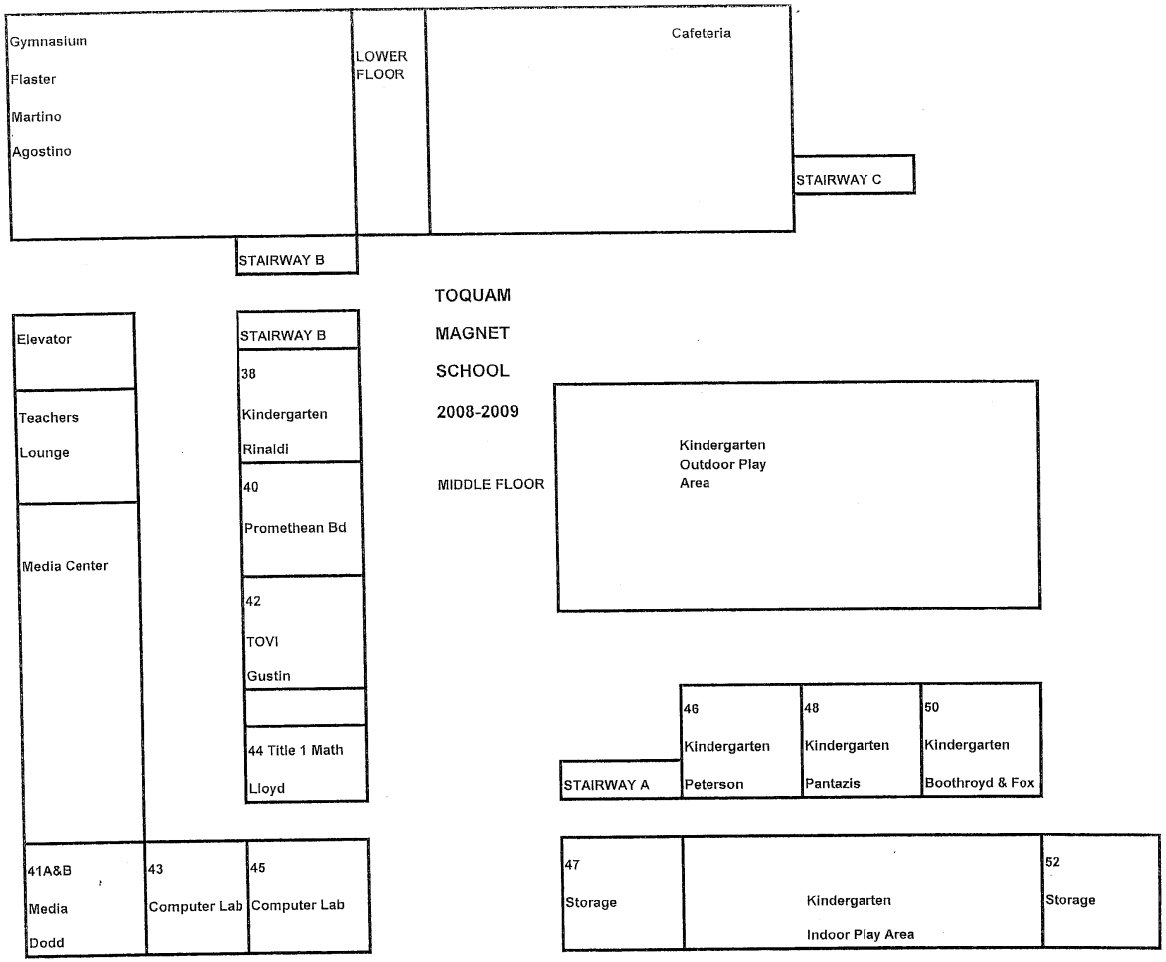
APPENDIX B:
SITE AND FLOOR PLANS


RIDGEWOOD AVENUE
N
SERVICE
TOQUAM
ELEMENTARY SCHOOL.
R&D 7/89



Project Number:	Project Name:	Project Date:
88166.09R-005.017	Toquam Magnet Elementary School	April 17, 2009


TOQUAM
MAGNET
SCHOOL
2008-2009
TOP FLOOR
36
35
33
31
29
Music
Eidt
28A Sped Adm
O'Reilly
28B Sped Adm
Lewis
28
OT/PT
27
Gr 4
Moser
P5
Gr 5
Cummins
37
34
32
30
Music
Whitney
28C Speech
Christian
STAIRWAY C
26
Gr 4
James
Gr 5
Hall & Valente
Reading Storage
24
Science Lab
25
Gr 4
Bushley & Wachnicki
P3
Dental Hygienist
Elevator
STAIRWAY B
2A
Conference Room
22
Art
Socci
23
Gr 4
Byrne
P2
Resource
Anderson
1
Gr 1
Austin
2
Reading
Courtright
20
Art
D'Agostino
21
ILNC
Merturi
P1
Gr 5
Martin
Hallway to Portables
Exit to Playground
3
Gr 1
Rubeck
4
Gr 1
Formentin
18
Nurse
19A Soc Wkr
Biehl
5
Gr 1
Valendra
6 ESL
Sioles
8
10
Gr 2
Brocking & Gill
12
Gr 2
Cuozzo
14
Gr 3
Cullen
19
Gr 3
Berkley
8A Rdg Resource
8C Lit Spec
Mara
STAIRWAY A
17A Psych
Ligon
7
Staff Develpmnt
Main Office
Main Lobby & Entrance
9
Gr 2
Stella
11
Gr 2
Keller
13
Gr 3
Keegan
15
Guided Reading & Tutoring
17
Gr 3
Strazza & Rosenberg
Asst Prin
Puccella
Prin
Spolowitz
Harvest Room

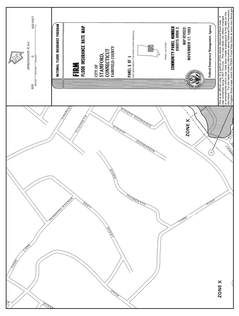

Gymnasium
Flaster
Martino
Agostino
LOWER FLOOR
Cafeteria
STAIRWAY C
STAIRWAY B
TOQUAM
MAGNET
SCHOOL
2008-2009
MIDDLE FLOOR
Elevator
Teachers
Lounge
Media Center
STAIRWAY B
38
Kindergarten
Rinaldi
40
Promethean Bd
42
TOVI
Gustin
44 Title 1 Math
Lloyd
Kindergarten
Outdoor Play
Area
STAIRWAY A
46
Kindergarten
Peterson
48
Kindergarten
Pantazis
50
Kindergarten
Boothroyd & Fox
41A&B
Media
Dodd
43
Computer Lab
45
Computer Lab
47
Storage
Kindergarten
Indoor Play Area
52
Storage

APPENDIX C:
SUPPORTING DOCUMENTATION

Cost Comparison Between JMOA Capital Plan and EMG Replacement Reserves						
Toquam Elementary						
Client - Project Name	**Client Cost**	**EMG Cost**	**EMG Shortage**	**Out of Scope?**	**Is work completed?**	**EMG Cost Comments**
Improve grading and drainage at playfield	$33,312	$0	$33,312	No	No	No issues with ponding or drainage reported or observed. Grading improvements included in playfield allowance below.
Add stairs to south pathway	$45,419	$38,430	$6,989	No	No	
New parking area and overlay existing parking	$305,374	$140,516	$164,858	No	No	Parking deficiency at Toquam not observed or reported. JMOA Scope not defined. Is parking need at Dolan or Toquam.
Replace wood handrails with metal pipe system	$2,781	$0	$2,781	No	Yes	**Work appears complete**
Irrigate and reseed playfields	$46,402	$38,104	$8,298	No	No	Added irrigation
Replace selected areas of concrete sidewalk	$40,951	$62,693	-$21,742	No	No	EMG cost includes asphalt path replacements
Repair crack in gym wall	$5,517	$0	$5,517	No	No	Included in re-pointing allowance
Repair/Replace selected doors & hardware	$75,006	$14,347	$60,659	No	No	Storefront doors included with curtainwall costs
Re-point entire building	$385,535	$155,736	$229,799	No	No	Re-point as required
Seal, re-point stairwells, walls	$29,355	$10,310	$19,045	No	No	Water-proofing cost; pointing included above
Repair roofing	$24,129	$7,521	$16,608	No	No	Roof replacement later during term
Add fencing to protect roof access by public	$19,627	$15,120	$4,507	No	No	Added
Repair retaining wall, clean area	$3,296	$0	$3,296	No	No	Routine Maintenance
Add anti-skid treads to stairs to Dolan walkway	$5,517	$5,040	$477	No	No	Added
Re-caulk leaking windows by principals office	$2,758	$0	$2,758	No	No	Routine maintenance
Re-glaze broken windows	$1,061	$0	$1,061	No	No	Routine maintenance

Repair damaged doors	$15,807	$0	$15,807	No	No	No deficiency observed
Paint all classrooms, corridors, and assembly areas	$73,202	$58,212	$14,990	No	No	
Repair ceilings in gym and cafeteria	$8,549	$0	$8,549	No	No	Minor repairs considered Routine maintenance. Acoustic tile allowance provided below.
Replace window blinds in classrooms	$53,151	$48,668	$4,483	No	No	Added
Add silencers, door stops to doors	$3,502	$0	$3,502	No	No	Routine maintenance
Purchase small storage box	$2,971	$0	$2,971	Yes	No	Out of scope
Install movable handicapped ramp at stage	$4,880	$18,078	-$13,198	No	No	EMG cost for wheelchair lift
Install acoustical treatment to cafeteria	$13,802	$13,230	$572	No	No	Added
Install cabinet to protect network equipment	$3,819	$0	$3,819	No	No	Routine maintenance
Re-grout ceramic tiles, clean tiles	$32,208	$0	$32,208	No	No	No major deficiencies noted above routine maintenance
Replace built-in cabinetry	$56,584	$112,644	-$56,060	No	No	Added
Replace ceiling tiles	$55,791	$70,905	-$15,114	No	No	
Repair selected walls	$39,632	$37,044	$2,588	No	No	No significant damage observed. Minor repairs can be addressed as part of interior painting. Painting allowance provided.
Replace carpet in selected areas	$52,430	$20,549	$31,881	No	No	
Replace door hardware	$17,293	$0	$17,293	Yes	No	Out of scope. JMOA scope not defined
Abate selected asbestos and remove lead (allowance)	$141,634	$142,700	-$1,066	No	No	
Construct addition	$656,106	$0	$656,106	Yes	No	Out of scope. JMOA scope not defined
Replace plumbing fixtures, partitions, and water fountains	$374,597	$192,474	$182,123	No	No	Cost seems high. EMG cost in cludes ADA renovation
Add toilet fixtures	$155,774	$0	$155,774	Yes	No	JMOA addition scope/need not defined

Replace boilers	$386,168	$0	$386,168	No	No	Refurbished with new burners
Add AC to cafeteria	$68,441	$0	$68,441	No	No	Cooled by existing system
Add ventilation to indoor play area	$25,710	$16,026	$9,684	No	No	Added makeup air unit
Repair/replace exhaust fans in toilet rooms	$17,611	$8,826	$8,785	No	No	Added
Install missing covers for thermostats	$2,122	$0	$2,122	No	No	Routine maintenance
Improve lighting to stairways and corridors	$69,834	$0	$69,834	No	Yes	**Assumed completed with lighting upgrades**
Add outlets to auditorium and cafeteria	$20,794	$0	$20,794	No	No	Included in allowance below.
Install technology cabling to classrooms	$34,299	$97,902	-$63,603	No	No	Added
Upgrade PA/Intercom system	$19,879	$62,450	-$42,571	No	No	
Replace existing exterior exit and security lighting	$33,206	$41,633	-$8,427	No	No	Added
Add fixtures to exterior to prevent vandalism	$2,758	$0	$2,758	No	No	Routine maintenance
Replace emergency generator	$210,506	$35,407	$175,099	No	No	Cost seems high
Replace selected sprinkler heads	$5,198	$27,374	-$22,176	No	No	
	JMOA Cost	**EMG Cost**	**Shortage**			
	$3,684,298	$6,484,833	-$2,800,535			
less completed items	$3,611,683					
Soft Costs (30%)		$1,945,450				
Location factor(11%)		$713,332				
Totals(Unescalated)		$9,143,615	-$5,531,932			


ZONE X
ZONE X
FIRM
FLOOD INSURANCE RATE MAP
CITY OF
CONNECTICUT
HARTFORD COUNTY
PANEL 0 OF 0
PANEL NUMBER 0000
MAP NUMBER
09003C0000
EFFECTIVE DATE
JANUARY 17, 1983
Federal Emergency Management Agency
NOTES: ZONE X: AREAS OUTSIDE THE 0.2% ANNUAL CHANCE FLOOD.
THIS MAP IS FOR USE IN THE NATIONAL FLOOD INSURANCE PROGRAM (NFIP).
THIS MAP IS NOT A LEGAL DOCUMENT. CONTACT THE FEMA FLOOD MAP SERVICE CENTER (1-800-358-9616) OR THE NFIP WEBSITE (WWW.FEMA.GOV/NFIP) FOR INFORMATION ABOUT THE LEGAL FLOOD DEFINITION.

APPENDIX D:
EMG ABBREVIATED ACCESSIBILITY CHECKLIST

Property Name: Toquam Magnet Elementary School
Date: April 17, 20-21, 2009
Project Number: 88166.09R-005.017

EMG Abbreviated Accessibility Checklist					
	Building History	**Yes**	**No**	**N/A**	**Comments**
1.	Has the management previously completed an ADA review?		✓		
2.	Have any ADA improvements been made to the property?	✓			
3.	Does a Barrier Removal Plan exist for the property?		✓		
4.	Has the Barrier Removal Plan been reviewed/approved by an arms-length third party such as an engineering firm, architectural firm, building department, other agencies, etc.?			✓	
5.	Has building ownership or management received any ADA related complaints that have not been resolved?				Unknown
6.	Is any litigation pending related to ADA issues?				Unknown
	Parking	**Yes**	**No**	**N/A**	**Comments**
1.	Are there sufficient parking spaces with respect to the total number of reported spaces?	✓			
2.	Are there sufficient van-accessible parking spaces available (96" wide/ 96" aisle for van)?	✓			
3.	Are accessible spaces marked with the International Symbol of Accessibility? Are there signs reading "Van Accessible" at van spaces?	✓			
4.	Is there at least one accessible route provided within the boundary of the site from public transportation stops, accessible parking spaces, passenger loading zones, if provided, and public streets and sidewalks?	✓			

EMG Abbreviated Accessibility Checklist					
5.	Do curbs on the accessible route have depressed, ramped curb cuts at drives, paths, and drop-offs?	✓			
6.	Does signage exist directing you to accessible parking and an accessible building entrance?	✓			
	Ramps	**Yes**	**No**	**N/A**	**Comments**
1.	If there is a ramp from parking to an accessible building entrance, does it meet slope requirements? (1:12)	✓			
2.	Are ramps longer than 6 ft complete with railings on both sides?		✓		See Section 3.1 for playground ramp
3.	Is the width between railings at least 36 inches?	✓			
4.	Is there a level landing for every 30 ft horizontal length of ramp, at the top and at the bottom of ramps and switchbacks?	✓			
	Entrances/Exits	**Yes**	**No**	**N/A**	**Comments**
1.	Is the main accessible entrance doorway at least 32 inches wide?	✓			
2.	If the main entrance is inaccessible, are there alternate accessible entrances?			✓	
3.	Can the alternate accessible entrance be used independently?			✓	
4.	Is the door hardware easy to operate (lever/push type hardware, no twisting required, and not higher than 48 inches above the floor)?	✓			
5.	Are main entry doors other than revolving door available?	✓			
6.	If there are two main doors in series, is the minimum space between the doors 48 inches plus the width of any door swinging into the space?	✓			
	Paths of Travel	**Yes**	**No**	**N/A**	**Comments**
1.	Is the main path of travel free of obstruction and wide enough for a wheelchair (at least 36 inches wide)?	✓			
2.	Does a visual scan of the main path reveal any obstacles (phones, fountains, etc.) that protrude more than 4 inches into walkways or corridors?		✓		See Section 3.1 for cane detection for drinking fountains

EMG Abbreviated Accessibility Checklist					
3.	Are floor surfaces firm, stable, and slip resistant (carpets wheelchair friendly)?	✓			
4.	Is at least one wheelchair-accessible public telephone available?			✓	
5.	Are wheelchair-accessible facilities (toilet rooms, exits, etc.) identified with signage?		✓		See Section 3.1for exterior restroom signage
6.	Is there a path of travel that does not require the use of stairs?	✓			
7.	If audible fire alarms are present, are visual alarms (strobe light alarms) also installed in all common areas?	✓			
	Elevators	**Yes**	**No**	**N/A**	**Comments**
1.	Do the call buttons have visual signals to indicate when a call is registered and answered?	✓			See Section 3.1 for full ADA study required for compliancy
2.	Is the "UP" button above the "DOWN" button?	✓			
3.	Are there visual and audible signals inside cars indicating floor change?		✓		
4.	Are there standard raised and Braille marking on both jambs of each host way entrance?	✓			
5.	Do elevator doors have a reopening device that will stop and reopen a car door if an object or a person obstructs the door?	✓			
6.	Do elevator lobbies have visual and audible indicators of car arrival?	✓			
7	Does the elevator interior provide sufficient wheelchair turning area (51″ x 68″)?		✓		
8.	Are elevator controls low enough to be reached from a wheelchair (48 inches front approach/54 inches side approach)?		✓		
9.	Are elevator control buttons designated by Braille and by raised standard alphabet characters (mounted to the left of the button)?		✓		
10.	If a two-way emergency communication system is provided within the elevator cab, is it usable without voice communication?		✓		
	Restrooms	**Yes**	**No**	**N/A**	**Comments**
1.	Are common area public restrooms located on an accessible route?	✓			See Section 3.1 for full restroom modifications of all items within section

EMG Abbreviated Accessibility Checklist					
2.	Are pull handles push/pull or lever type?		✓		
3.	Are there audible and visual fire alarm devices in the toilet rooms?	✓			
4.	Are corridor access doors wheelchair-accessible (at least 32 inches wide)?	✓			
5.	Are public restrooms large enough to accommodate a wheelchair turnaround (60″ turning diameter)?		✓		
6.	In unisex toilet rooms, are there safety alarms with pull cords?			✓	
7.	Are stall doors wheelchair accessible (at least 32″ wide)?		✓		
8.	Are grab bars provided in toilet stalls?	✓			
9.	Are sinks provided with clearance for a wheelchair to roll under (29″ clearance)?	✓			
10.	Are sink handles operable with one hand without grasping, pinching or twisting?		✓		
11.	Are exposed pipes under sink sufficiently insulated against contact?		✓		
12.	Are soap dispensers, towel, etc. reachable (48″ from floor for frontal approach, 54″ for side approach)?		✓		
13.	Is the base of the mirror no more than 40″ from the floor?		✓		

APPENDIX E:
PRE-SURVEY QUESTIONNAIRE AND DOCUMENTATION REQUEST CHECKLIST

PRE-SURVEY QUESTIONNAIRE

This questionnaire was completed by the property owner, the owner's designated representative, or someone knowledgeable about the subject property. ***This completed form*** was ***presented to EMG's Field Observer on the day of the site visit***.

Project Name:	**Toquam Magnet Elementary School**	**Project Number:**	**88166.09R-005.017**
Person completing form:	**Ms. Louise F. Spolowitz, Ph D. Mr. David Borsey**	**Date:**	**April 17, 20-21, 2009**
Association with Project:	**Principal and Head Custodian**	**Phone Number:**	**203.977.4556**
Years associated with Proj.:	**3.5 and 8 years respectively**	**Fax Number:**	
Current Owner:		**Estimated Value:**	

Unk = Unknown, NA = Not Applicable

	Yes	No	Unk	NA	Comments
1. Does the property have full-time maintenance personnel on-site?	✓				
2. Have there been any capital improvements in the last five years?	✓				
If so, are details available?					
3. Are there any unresolved building, fire, or zoning code issues?		✓			
If so, what additional info is available?					
4. Are there any "down", unusable units?	✓				
5. Are there any problems or hazards at the property?	✓				
6. Has the property ever had an ADA accessibility review?		✓			
If so, is a copy available?					
7. Does a Barrier removal plan exist for the property?		✓			
8. Are there any unresolved accessibility issues at the property?			✓		
9. Is there any pending litigation concerning the property?			✓		
10. Is site drainage adequate?	✓				
11. Has a termite inspection occurred within the last year?	✓				
Is a copy of an inspection report available?					
12. Are there any problems with foundations or structures?		✓			
If so, are there plans to address?					
13. Is there any water infiltration in basements or crawl spaces?	✓				
14. Are there any wall or window leaks?	✓				
15. Are there any poorly insulated areas?					
16. Are there any current roof leaks at the property?	✓				
17. Are any roof finishes more than ten years old?	✓				
18. Is the roofing covered by a warranty or bond?	✓				
19. Is Fire Retardant Treated (FRT) plywood used at the property?		✓			

	Yes	No	Unk	NA	Comments
20. Does the property have an exterior insulation and finish system (EIFS) with a synthetic stucco finish		✓			
21. Do the utilities (electric, gas, sewer, water) provide adequate service?	✓				
22. Is the property served by an on-site water system?		✓			
23. Is the property served by an on-site septic system?		✓			
24. If present, do irrigation systems function properly?				✓	
25. Are HVAC systems at the property inspected and maintained, at a minimum, annually?	✓				
26. Is the HVAC equipment more than ten years old?	✓				
27. Do any of the HVAC systems use R-11, 12, or 22 refrigerants?	✓				
28. Do tenants contract for their own HVAC work?				✓	
29. Has any HVAC system, or any other part of the property, ever contained visible suspect mold growth?	✓				The pipe insulation on the chiller lines have had suspect mold growth
If so, where and when?					
30. Has the property ever been tested for indoor air quality or suspect mold?		✓			
If so, where and when? Results?					
31. Is there a response action in place to prevent mold growth or respond to its presence?		✓			
If so, describe. Is a copy available?					
32. Are the water heaters/boilers more than ten years old?	✓				
33. Is polybutylene piping used at the property?		✓			
34. Are there any plumbing leaks or water pressure problems?		✓			
35. Are the any leaks or pressure problems with natural gas service?		✓			
36. Does any part of the electrical system use aluminum wiring?		✓			
37. Do Residential units have a min. of 60-Amp service or Commercial units have a min. 200-Amp service?				✓	
38. Has elevator equipment been replaced in the last ten years?		✓			
39. Are the elevators maintained by a contractor on a regular basis?	✓				
40. Is the elevator emergency communication equipment functional?	✓				
41. Is the elevator emergency communication equipment ADA compliant?		✓			
42. Have the fire/life safety systems been inspected within the last year?	✓				
43. Are there any smoke evacuation or pressurization systems?		✓			
44. Are there any recalled Omega or Central brand fire sprinkler heads that have not yet been replaced?		✓			
45. Are there any emergency electrical generators?	✓				
46. Are the generators maintained on a regular basis?	✓				

	Yes	No	Unk	NA	Comments
47. Do tenants contract for their own improvement work?				✓	
48. Are tenants responsible for any roof, HVAC, or exterior wall maintenance, repair, or replacement?				✓	
If so, what, where and how?					
49. Have there been previous due diligence, engineering, environmental, or geological studies done?		✓			
If so, are copies available?					
50. Is there anything else that EMG should know about when assessing this property? If so, what?		✓			

On the day of the site visit, provide EMG's Field Observer access to all of the available documents listed below. Provide copies if possible.

INFORMATION REQUIRED

1. All available construction documents (blueprints) for the original construction of the building or for any tenant improvement work or other recent construction work.

2. A site plan, preferably 8 1/2" X 11", which depicts the arrangement of buildings, roads, parking stalls, and other site features.

3. For commercial properties, provide a tenant list which identifies the names of each tenant, vacant tenant units, the floor area of each tenant space, and the gross and net leasable area of the building(s).

4. For apartment properties, provide a summary of the apartment unit types and apartment unit type quantities, including the floor area of each apartment unit as measured in square feet.

5. For hotel or nursing home properties, provide a summary of the room types and room type quantities.

6. Copies of Certificates of Occupancy, building permits, fire or health department inspection reports, elevator inspection certificates, roof or HVAC warranties, or any other similar, relevant documents.

7. The names of the local utility companies which serve the property, including the water, sewer, electric, gas, and phone companies.

8. The company name, phone number, and contact person of all outside vendors who serve the property, such as mechanical contractors, roof contractors, fire sprinkler or fire extinguisher testing contractors, and elevator contractors.

9. A summary of recent (over the last 5 years) capital improvement work which describes the scope of the work and the estimated cost of the improvements. Executed contracts or proposals for improvements. Historical costs for repairs, improvements, and replacements.

10. Records of system and material ages (roof, MEP, paving, finishes, furnishings).

11. Any brochures or marketing information.

12. Appraisal, either current or previously prepared.

13. Current occupancy percentage and typical turnover rate records (for commercial and apartment properties).

14. Previous reports pertaining to the physical condition of property.

15. ADA survey and status of improvements implemented.

16. Current/pending litigation related to property condition.

Your timely compliance with this request is greatly appreciated.

APPENDIX F:
ACRONYMS AND OUT OF SCOPE ITEMS

ASTM E2018-01 ACRONYMS

ADA - The Americans with Disabilities Act
ASTM - American Society for Testing and Materials
BOMA - Building Owners and Managers Association
BUR - Built-up Roofing
DWV – Drainage, Waste, Ventilation
EIFS - Exterior Insulation and Finish System
EMF – Electro Magnetic Fields
EMS - Energy Management System
EUL - Expected Useful Life
FEMA - Federal Emergency Management Agency
FFHA - Federal Fair Housing Act
FIRMS - Flood Insurance Rate Maps
FNA – Facilities Needs Assessment
FRT- Fire Retardant Treated
FOIA - U.S. Freedom of Information Act (5 USC 552 et seq.) and similar state statutes.
FOIL - Freedom of Information Letter
FM - Factory Mutual
HVAC - Heating, Ventilating and Air-conditioning
IAQ - Indoor Air Quality
MEP – Mechanical, Electrical and Plumbing
NFPA - National Fire Protection Association
PCR - Property Condition Report
PML - Probable Maximum Loss
RTU - Rooftop Unit
RUL - Remaining Useful Life
STC – Sound Transmission Class
UBC – Uniform Building Code

Ref #	Section 8: ASTM E 2018-01 Out of Scope Items
8.4.1.8	***Utilities:*** Operating conditions of any systems or accessing manholes or utility pits.
8.4.2.2	***Structural Frame and Building Envelope:*** Entering of crawl or confined space areas (however, field observer should observe conditions to the extent easily visible from the point of access to the crawl or confined space areas), determination of previous substructure flooding or water penetration unless easily visible or if such information is provided.
8.4.3.2	***Roofs:*** Walking on pitched roofs, or any roof areas that appear to be unsafe, or roofs with no built-in access, or determining any roofing design criteria.
8.4.4.2	***Plumbing:*** Determining adequate pressure and flow rate, fixture-unit values and counts, or verifying pipe sizes and verifying the point of discharge for underground systems.
8.4.5.2	***Heating:*** Observation of flue connections, interiors of chimneys, flues or boiler stacks, or -owned or maintained equipment.
8.4.6.2	***Air-conditioning and Ventilation:*** Evaluation of process related equipment or condition of owned/maintained equipment.
8.4.7.2	***Electrical:*** Removing of electrical panel covers, except if removed by building staff, EMF issues, electrical testing, or operating of any electrical devices. Process related equipment or owned equipment.
8.4.8.2	***Vertical Transportation:*** Examining of cables, sheaves, controllers, motors, inspection tags, or entering elevator/escalator pits or shafts
8.4.9.1	***Life Safety/Fire Protection***: Determining NFPA hazard classifications, classifying, or testing fire rating of assemblies.
8.4.10.2	***Interior Elements:*** Operating appliances or fixtures, determining or reporting STC (Sound Transmission Class) ratings, and flammability issues/regulations.

Ref #	Section 11: ASTM E 2018-01 Out of Scope Items
11.1	*Activity Exclusions* - The activities listed below are generally excluded from or otherwise represent limitations to the scope of a Comprehensive Building Condition Assessment prepared in accordance with this *guide*. These should not be construed as all-inclusive or implying that any exclusion not specifically identified is a Comprehensive Building Condition Assessment requirement under this *guide*.
11.1.1	Removing or relocating materials, furniture, storage containers, personal effects, debris material or finishes; conducting exploratory probing or testing; *dismantling* or operating of equipment or appliances; or disturbing personal items or *property* which obstructs access or visibility.
11.1.2	Preparing *engineering* calculations (civil, structural, mechanical, electrical, etc.) to determine any *system's*, *component's*, or equipment's adequacy or compliance with any specific or commonly accepted design requirements or *building codes*, or preparing designs or specifications to remedy any *physical deficiency*.
11.1.3	Taking measurements or quantities to establish or confirm any information or representations provided by the *owner* or *user* such as: size and dimensions of the *subject property* or *subject building*, any legal encumbrances such as easements, dwelling unit count and mix, building *property* line setbacks or elevations, number and size of parking spaces, etc.
11.1.4	Reporting on the presence or absence of pests such as wood damaging organisms, rodents, or insects unless evidence of such presence is readily apparent during the course of the *field observer*'s *walk-through survey* or such information is provided to the *consultant* by the *owner*, *user*, property manager, etc. The *consultant* is not required to provide a *suggested remedy* for treatment or remediation, determine the extent of infestation, nor provide *opinions of probable costs* for treatment or remediation of any deterioration that may have resulted.
11.1.5	Reporting on the condition of subterranean conditions such as underground utilities, separate sewage disposal *systems*, wells; *systems* that are either considered process-related or peculiar to a specific tenancy or use; waste water treatment plants; or items or *systems* that are not permanently installed.

Ref #	Section 11: ASTM E 2018-01 Out of Scope Items
11.1.6	Entering or accessing any area of the premises deemed to pose a threat of *dangerous or adverse conditions* with respect to the *field observer* or to perform any procedure, which may damage or impair the physical integrity of the *property*, any *system*, or *component*.
11.1.7	Providing an opinion on the condition of any *system* or *component,* which is *shutdown,* or whose operation by the *field observer* may significantly increase the registered electrical demand-load. However, *consultant* is to provide an opinion of its physical condition to the extent reasonably possible considering its age, obvious condition, manufacturer, etc.
11.1.8	Evaluating acoustical or insulating characteristics of *systems* or *components*.
11.1.9	Providing an opinion on matters regarding security of the *subject property* and protection of its occupants or *users* from unauthorized access.
11.1.10	Operating or witnessing the operation of lighting or other *systems* typically controlled by time clocks or that are normally operated by the building's operation staff or service companies.
11.1.11	Providing an environmental assessment or opinion on the presence of any environmental issues such as asbestos, hazardous wastes, toxic materials, the location and presence of designated wetlands, IAQ, etc.
11.2	*Warranty, Guarantee and Code Compliance Exclusions* - By conducting a Comprehensive Building Condition Assessment and preparing a PCR, the *consultant* is merely providing an opinion and does not warrant or guarantee the present or future condition of the *subject property,* nor may the Comprehensive Building Condition Assessment be construed as either a warranty or guarantee of any of the following:
11.2.1	any *system's* or *component's* physical condition or use, nor is a Comprehensive Building Condition Assessment to be construed as substituting for any *system*'s or equipment's warranty transfer inspection;
11.2.2	compliance with any federal, state, or local statute, ordinance, rule or regulation including, but not limited to, *building codes*, safety codes, environmental regulations, health codes or zoning ordinances or compliance with trade/design standards or the standards developed by the insurance industry. However, should there be any conspicuous *material* present violations *observed* or reported based upon *actual knowledge* of the *field observer* or the *PCR reviewer*, they should be identified in the PCR;
11.2.3	compliance of any material, equipment, or *system* with any certification or actuation rate program, vendor's or manufacturer's warranty provisions, or provisions established by any standards that are related to insurance industry acceptance/approval such as FM, State Board of Fire Underwriters, etc.
11.3	Additional/General Considerations:
11.3.1	Further Inquiry - There may be physical condition issues or certain physical improvements at the *subject property* that the parties may wish to assess in connection with a *commercial real estate transaction* that are outside the scope of this *guide*. Such issues are referred to as non-scope considerations and if included in the PCR, should be identified under Section 10.9.
11.3.2	*Non-Scope Considerations* - Whether or not a *user* elects to inquire into non-scope considerations in connection with this *guide* is a decision to be made by the *user*. No assessment of such non-scope considerations is required for a Comprehensive Building Condition Assessment to be conducted in compliance with this *guide*.

APPENDIX G:
RESUMES FOR REPORT REVIEWER AND FIELD OBSERVER

BILL CHAMPION, PMP

Program Manager

Cost Segregation Manager

Education

- MBA from the University of Rochester (Simon)
- MS in Mechanical Engineering from the State University of New York at Buffalo
- BS in Mechanical Engineering from the State University of New York at Buffalo

Project Experience

- ***Housing Authority of the City of Pittsburgh, Pittsburgh, PA*** – Mr. Champion was a member of the Quality Assurance Review Team for this Physical Needs Assessment portfolio that encompassed over 6,114 housing units within 20 separate communities in City of Pittsburgh, Pennsylvania. The objective of the PNA was to provide a general description of all physical improvements that the Client would need to undertake to bring its properties, including dwellings and non-dwellings structures, to a level that will provide safe, decent and sanitary living conditions for the residents. Mr. Champion utilized his engineering expertise to ensure that the methodology and protocol were not compromised during the execution of the assessment.
- ***George Mason University, Fairfax, VA***- As Program Manager, Mr. Champion was responsible for meeting with the Client and developing a specific program that exceeded the Client's expectations. The program was designed to provide facility condition assessments and prepare a database for tracking, systems, building components, deficiencies and replacements. This database was customized further to include a detailed equipment inventory. This database was designed based on Client input and the end user in mind. Mr. Champion's ability to troubleshoot issues allowed EMG to conduct this program effectively and maintain the schedule and budget.
- ***University of Virginia, Charlottesville, VA*** – Mr. Champion performed Facilities Condition Audits on academic buildings on the campus of The University of Virginia. He evaluated building condition and systems, outlined physical deficiencies and gave recommendations for prioritizing them to maximize safety and minimize long-term costs.

Industry Tenure

- A/E: 1994
- EMG: 2002

Related Experience

- Multifamily Housing Portfolios
- Government Agency Portfolios
- K-12 Education Portfolios
- Higher Education Portfolios
- Retail Portfolios
- Industrial Portfolios

Industry Experience

- Multi-family Housing
- Cost Segregation
- Government
- Retail
- Industrial
- K-12 Education
- Higher Education

Active Licenses / Registrations

- Certified Project Management Professional (PMP) by the Project Management Institute, # 50241
- Engineer in Training in the State of New York, # 046094
- Member- American Society of Mechanical Engineers

Regional Location

- Baltimore, Maryland

DANNY WHITE

Project Manager

Project Experience

- ***Hendrick Auto Group (HAG), Charlotte, NC –*** Mr. White served as a Project Manager on the property needs assessment (PNA) of 20 HAG automotive dealerships, primarily located throughout the state of North Carolina. The assessments included major structural, mechanical and electrical components of buildings and infrastructures. Dealerships ranged in size from approximately 20,000 to 80,000 SF and occupying sites ranging from two to 25 acres. The client found his observations critical to their final business decisions.
- ***Alexandria City Public Schools (ACPS), Alexandria, VA –*** As a Project Manager, Mr. White performed a Facility Condition Assessment of five public schools in the ACPS system ranging in size from a 62,760 SF elementary school to a 237,332 SF middle school. The assessments included multi-acre site infrastructures including landscapes, pavements and playground equipment. He reviewed the condition of the building structure and systems and developed a thorough report. His work helped EMG complete this project on schedule and within the budget.
- ***City of San Buenaventura Assessments, Ventura, CA –*** Mr. White served as a Project Manager on the San Buenaventura Public Housing physical needs assessments (PNA) project. Structures assessed included multi-family housing apartments, senior citizen multi-level towers, rental offices, community centers, and maintenance buildings. Structural, mechanical, electrical, and site systems and finishes were assessed for current condition and cost recommendations for a 20-year term. Interviews were conducted with maintenance and administrative personnel to discuss known deficiencies. Findings were used to establish Expected Useful Life (EUL), and Remaining Useful Life (RUL) of the systems and components.

Industry Tenure

- A/E: 1988
- EMG: 2007

Related Experience

- Educational Facility Condition Assessment reports
- Assisted Living Portfolios
- Retail Portfolios
- Hospitality Portfolios

Industry Experience

- Government Facilities
- Municipal Facilities
- Office
- Industrial
- Housing/Multi-family
- K-12
- Higher Education
- Hospitality
- Healthcare
- Retail/Wholesale
- Assisted Living

Special Skills & Training

- Roof Inspection & Management - Diagnosis & Repair – RIEI
- Pavement Management University of Illinois

Regional Location

- Norfolk - Virginia Beach, VA

- ***City of Dallas Assessments (Dallas Zoo), Dallas, TX –*** As a Project Manager, Mr. White performed facility condition assessments of approximately 100 buildings comprising over 320,000 SF, and 95 acres of infrastructure at the Dallas Zoo. Buildings included offices, auditoriums, garages, maintenance facilities, warehouses, restrooms, animal hospital, schools, and various exhibit and animal holding structures. Additional Dallas assessments included the Arlington Hall Conservatory and the Royal Preston Library. Mr. White also served as a Technical Report Reviewer (TRR) for final review of various other assessment reports.
- ***County of San Diego Assessments, San Diego, CA –*** Mr. White served as a Project Manager and provided facility condition assessments (FCA) of County of San Diego properties. The scope of work included the assessment of numerous buildings and infrastructures including the Kearney Mesa Juvenile Detention Facility, Juvenile Hall, San Diego Courthouse Plant, Law Library, Palomar Mountain Park and others. Reports were generated giving broad details of structural, mechanical, electrical, and site elements and event recommendations for a 20-year evaluation term.
- ***GE Healthcare Financial Services, Multiple Cities –*** As a Project Manager, Mr. White performed eight property condition assessments (PCA) of this portfolio of Genesis Health Care Nursing Homes. The average property size was 48,000 square feet and an average of 140 units. He reviewed the condition of the building structural, mechanical, and electrical systems, and the site infrastructure and developed a thorough report. Repair and replacement costs were provided for a 12 year reserve term. His work helped EMG complete this project on schedule and within the budget.
- ***Barclays Capital Real Estate Inc, Multiple Cities –*** As a Project Manager, Mr. White performed three property condition assessments (PCA) of this portfolio of hospitality properties, including Potomac Mills Courtyard, Potomac Mills Residence Inn, and Springfield TownePlace Suites located in Northern Virginia. The average property size was 80,000 square feet and an average of 124 units. He reviewed the condition of the building structural, mechanical, and electrical systems, and the site infrastructure and developed a thorough report. Repair and replacement costs were provided for a 7 year reserve term. His work helped EMG complete this project on schedule and within the budget.
- ***Lord and Taylor – Fair Oaks Mall, Fairfax, VA –*** As a Project Manager, Mr. White performed a property condition assessment of this retail property. The building occupies 3.67 acres of the Fair Oaks Mall property and is 159,876 square feet in size. He reviewed the condition of the building structural, mechanical, and electrical systems, and the site infrastructure and developed a thorough report. He interviewed management personnel of Lord and Taylor and the Fair Oaks Mall to determine site maintenance responsibilities. Repair and replacement costs were provided for a 12 year reserve term. His work helped EMG complete this project on schedule and within the budget.

City Government Experience

- ***Virginia Beach Municipal Center , Virginia Beach, VA –*** As a Project Engineer/Technician, Mr. White performed structural facility condition assessment of City Hall, Voter Registration Building, Police Station, Court Support Building, Special Education Building, Heating Plant and related infrastructure within the City of Virginia Beach Municipal Complex. Buildings ranged in size from 28,000 to 90,000 square feet. His team met with the Director of Maintenance to discuss known conditions prior to commencing a thorough visual inspection of designated high profile facilities. Inspection scheduling involved strict visit guidelines in order to minimize disruption of normal business activities. Special consideration was required in conjunction with planned major mechanical and structural systems replacements and the anticipated need for removal of known hazardous materials in ceilings and attics. Deficiencies collected included preventative and recurring maintenance items. He created a prioritized backlog of maintenance and repair to affected structural systems for a 10 year plan. An inventory of roof section types and quantities was provided to the client. His work insured the timely completion of the project within the budget guidelines.

Higher Education Experience

- ***Haskell Indian University, Lawrence, KS –*** As a Project Engineer/Technician, Mr. White performed structural facility condition assessment as part of an inspection team. Facilities inspected included administrative offices, maintenance shops, classrooms, cafeteria and gymnasium. His team met with the facility managers to discuss known deficiencies, environmental concerns, and safety issues throughout the approximately 300,000 square feet of assigned buildings. Ideas were exchanged for ways to increase the budget allocation for repairs and upgrades through the identification of some not easily detected deficiencies. He created a prioritized maintenance and repair strategy for a 10 year plan. An inventory of exterior structural components was also provided to the client. His work insured the team's completion of the project within the time constraints and budget.

Department of Defense

- ***US Naval Submarine Base Kings Bay, GA*** – As a Facilities Maintenance Specialist with the federal government, Mr. White applied his expertise in the structural assessment of the nearly one million square feet Trident Training Facility. The comprehensive assessment of interior, exterior, and roof system components was challenging due to size, accessibility, and security. He met with the facility manager to obtain construction drawings, contact names for the various departments, and a history of deficiencies. He provided an overall condition analysis of the building and a brief narrative and inventory of each major structural system. A 5 year maintenance plan was formulated for recurring and deferred maintenance complete with fundable estimates generated from RS Means estimating software. Mr. White entered the deficiency cost data into the activity's maintenance action plan software which is reported to the Department of Defense for budget planning.

JOSEPH ABBATE

Project Manager

Education

- Bachelor of Science in Mechanical Engineering from Rutgers University, College of Engineering in 1985

Project Experience

- ***Durham Housing Authority, Durham, NC –*** As a Field Technician, Mr. Abbate performed a Physical (Capital) Needs Assessment for seven public housing developments. The largest development consisted of sixty buildings with 360 units, totaling 336,400 square feet on 25 acres. He reviewed the condition of the site, building structure and systems and developed a thorough report with a twenty-year evaluation period. His work helped EMG complete this project on schedule and within the budget.
- ***The Carlyle Hotel, New York, NY –*** As a Field Technician, Mr. Abbate performed a Property (Equity) Condition Assessment of the historical hotel consisting of 187 guest rooms within the 38 story building. He reviewed the condition of the building structure and systems and developed a thorough report. His work helped EMG complete this project on schedule and within the budget.
- ***300 and 306 West 22nd Street Hotel and Apartments, New York, NY –*** As a Field Technician, Mr. Abbate provided construction management services for partial demolition and complete restoration of the existing hotel. The services were provided to near completion of the 8 million dollar budget hotel. He reviewed the construction work, budget and rate of completion on a monthly basis and developed a thorough report. His work helped EMG complete this project on schedule and within the budget.
- ***Bank of America, Sky Portfolio, New York, NY –*** As a Field Technician, Mr. Abbate performed a Property Condition Assessment for numerous prestigious high-rise commercial office buildings within Manhattan. He reviewed the condition of the building structure and systems and developed a thorough report. His work helped EMG complete this project on schedule and within the budget.

Industry Tenure

- A/E: 1995
- EMG: 2005

Related Experience

- Educational Facility Condition Assessment reports
- Assisted Living Portfolios
- Hospitality Portfolios
- Retail Portfolios
- Architectural Design

Industry Experience

- Government Facilities
- Office
- Industrial
- Housing/Multi-family
- K-12
- Hospitality
- Healthcare
- Retail/Wholesale

Special Skills & Training

- AutoCAD
- Phase I Environmental Site Assessments
- Phase II Site Remediation and Techniques

Regional Location

- New York, NY