PROBABLE COST OPINION

Facilities Assessment - Vermont Technical College		
1.	**Administration Center**	$ 178,002
2.	**Old Dorm**	$ 162,688
3.	**Conant Hall**	$ 281,410
4.	**Judd Hall & Bookstore**	$ 45,489
5.	**Morrill Hall & Annex**	$ 267,345
6.	**Robert Clark Hall**	$ 42,441
7.	**Green Hall & Greenhouse**	$ 333,235
8.	**Hartness Library**	$ 157,397
9.	**Morey Hall**	$ 368,399
10.	**Keenan Hall**	$ 261,547
11.	**President's House**	$ 17,207
12.	**Shape Facility & Campus Planning**	$ 177,070
13.	**Nutting Hall**	$ 288,077
14.	**Construction Management Services, Automotive Technoloty, Fire Science**	$ 43,971
15.	**Facility Center**	$ 107,501
16.	**Facility Storage Building**	$ 11,934
17.	**Generator Building**	$ 1,346
18.	**Red School House**	$ 12,439
19.	**Allen House**	$ 45,764
20.	**Langevin House**	$ 26,463
21.	**Biodigester**	$ 615
22.	**Farmstead - Main Barn**	$ 79,923
23.	**Farmstead - Heifer Barn**	$ 1,571
24.	**Farmstead - Equine Vet Tech**	$ 2,534
25.	**Farmstead - Small Animal Barn**	$ 13,341
26.	**Farmstead - Hay Barn**	$ 3,211
27.	**Farmstead - Sugar House**	$ 410
28.	**Farmstead - Silos & Shed**	$ 22,624
29.	**Farmstead - Equipment Shed**	$ 1,025
		$ 2,954,979
FOOTNOTES:		
A.	No cost provided; item is not applicable or cannot be defined.	
B.	Cost is an estimate of professional fees to analyze or evaluate the issue.	
C.	Cost cannot be provided without additional design work to determine scope.	
Allow.	Allowance.	

	Facilities Assessment - Vermont Technical College		Quantity	Unit	Unit Price	Extension	With 8% GCs	With 15% Cont.	With 10% MU	Item Total	Grand Total
Administration Center											
1.1	INTERIOR: First Floor: Hall/ Lobby:	Recommend adding ceiling fans to de-stratify heat.	1	Allow.	$ 10,000.00	$ 10,000	$ 10,800	$ 12,420	$ 13,662	$ 13,662	
1.2		Repair leaking radiator; clean slate floor below.	1	Allow.	$ 2,130.00	$ 2,130	$ 2,300	$ 2,645	$ 2,910	$ 2,910	
1.3		Sand and paint steel pan nosing on slate stair treads at open stair.	1	Allow.	$ 750.00	$ 750	$ 810	$ 932	$ 1,025	$ 1,025	
1.4	Bathrooms:	Install pipe protection below sink.	1	Allow.	$ 1,400.00	$ 1,400	$ 1,512	$ 1,739	$ 1,913	$ 1,913	
1.5	Lounge/Kitchenette:	Replace carpet.	1	Allow.	$ 660.00	$ 660	$ 713	$ 820	$ 902	$ 902	
1.6		Lower counter to 34" to be ADA compliant.	1	Allow.	$ 3,550.00	$ 3,550	$ 3,834	$ 4,409	$ 4,850	$ 4,850	
1.7	East Entrance at Public Safety:	Vestibule rubber flooring, rubber treads and risers at stair should be replaced.	1	Allow.	$ 3,475.00	$ 3,475	$ 3,753	$ 4,316	$ 4,748	$ 4,748	
1.8		Carpet in Public Safety Office should be replaced.	1	Allow.	$ 660.00	$ 660	$ 713	$ 820	$ 902	$ 902	
1.9	Second Floor:	Remove old partition track, in Ethan Allen Conference Room; patch gypsum ceiling and wall.	1	Allow.	$ 440.00	$ 440	$ 475	$ 546	$ 601	$ 601	
1.10	EXTERIOR: General:	Replace east door and frame.	1	Allow.	$ 2,045.00	$ 2,045	$ 2,209	$ 2,540	$ 2,794	$ 2,794	
1.10A		Paint adjacent door	1	Allow.	$ 110.00	$ 110	$ 119	$ 137	$ 150	$ 150	
1.11		Window and door caulking has failed; install backer rod and sealant.	1	Allow.	$ 5,000.00	$ 5,000	$ 5,400	$ 6,210	$ 6,831	$ 6,831	
1.12		Sand and repaint steel lintels at windows within 1-3 years.	1	Allow.	$ 5,000.00	$ 5,000	$ 5,400	$ 6,210	$ 6,831	$ 6,831	
								$ -			
1.13		Gypsum board ceilings at North and South Porches on East Wing are sagging; replace.	1	Allow.	$ 3,600.00	$ 3,600	$ 3,888	$ 4,471	$ 4,918	$ 4,918	
1.13A		Paint wood trim panelling within 1-3 years	1	Allow.	$ 5,600.00	$ 5,600	$ 6,048	$ 6,955	$ 7,651	$ 7,651	
1.14		Repair and paint rot at wood fascia east of South Entrance.	1	Allow.	$ 750.00	$ 750	$ 810	$ 932	$ 1,025	$ 1,025	
1.16	Entrances:	Recommend replacing aluminum storefront at North and South Entrances within 3-5 years.	1	Allow.	$ 9,760.00	$ 9,760	$ 10,541	$ 12,122	$ 13,334	$ 13,334	
1.17		Replace hardware at North and South Entrances.	1	Allow.	$ 5,000.00	$ 5,000	$ 5,400	$ 6,210	$ 6,831	$ 6,831	
1.18	LIFE SAFETY:	Main Stair in the Atrium at the Lobby/Hall has open risers; install solid risers.	1	Allow.	$ 2,750.00	$ 2,750	$ 2,970	$ 3,416	$ 3,757	$ 3,757	
1.19		Install guard at 42" above low wall at 2nd floor landing in West Stair.	1	Allow.	$ 280.00	$ 280	$ 302	$ 348	$ 383	$ 383	
								$ -			
1.20	ACCESSIBILITY:	Move ADA push-button operators at North and South Entrances out of the door swing area.	1	Allow.	$ 9,950.00	$ 9,950	$ 10,746	$ 12,358	$ 13,594	$ 13,594	

	Facilities Assessment - Vermont Technical College		Quantity	Unit	Unit Price	Extension	With 8% GCs	With 15% Cont.	With 10% MU	Item Total	Grand Total
1.21		Modifications are needed to the Men's and Women's Room on the first and second floors to make entrance ADA compliant.	1	Allow.	$ -	$ -	$ -	$ -	$ -	$ -	
1.22		Replace knob-style door hardware with ADA-compliant lever style within 1-3 years.	75	Allow.	$ 650.00	$ 48,750	$ 52,650	$ 60,548	$ 66,602	$ 66,602	
1.23		Modify service counters at Mail Room, Student Accounts, Financial Aid and Registrar to 36" to be ADA compliant.	3	Allow.	$ 2,550.00	$ 7,650	$ 8,262	$ 9,501	$ 10,451	$ 10,451	

	Facilities Assessment - Vermont Technical College		Quantity	Unit	Unit Price	Extension	With 8% GCs	With 15% Cont.	With 10% MU	Item Total	Grand Total
Old Dorm											
2.1	INTERIOR: First and Second Floors:	Replace damaged and mismatched ceiling tiles outside Room 152.	1	ea	$ 56.00	$ 56	$ 60	$ 70	$ 77	$ 77	
2.2	Bathrooms:	Reattach base and seal seams in sheet vinyl floor and base - multiple locations.	1	ea	$ 1,040.00	$ 1,040	$ 1,123	$ 1,292	$ 1,421	$ 1,421	
2.3	Stairs:	Replace damaged stair treads, strip and refinish landings, treads and risers at lower runs.	1	ea	$ 10,160.00	$ 10,160	$ 10,973	$ 12,619	$ 13,881	$ 13,881	
2.4	Basement: East Wing:	Install vinyl base at all walls.	1	ea	$ 500.00	$ 500	$ 540	$ 621	$ 683	$ 683	
2.5	EXTERIOR:	Paint window wood casings within 5 years.	1	ea	$ 8,400.00	$ 8,400	$ 9,072	$ 10,433	$ 11,476	$ 11,476	
2.6		Trim will need repainting within 5 years.	1	ea	$ 7,500.00	$ 7,500	$ 8,100	$ 9,315	$ 10,247	$ 10,247	
2.7		Replace damaged, displaced or cracked vinyl siding - multiple locations.	1	ea	$ 5,000.00	$ 5,000	$ 5,400	$ 6,210	$ 6,831	$ 6,831	
2.8		Repair spalling along south and southeast concrete walls.	1	ea	$ 3,500.00	$ 3,500	$ 3,780	$ 4,347	$ 4,782	$ 4,782	
2.9	Front Porch:	Treat or paint Front Entry Porch wood floor to extend it's life.	1	ea	$ 750.00	$ 750	$ 810	$ 932	$ 1,025	$ 1,025	
2.10		Recommend painting wood railing for aesthetic appeal.	1	ea	$ 160.00	$ 160	$ 173	$ 199	$ 219	$ 219	
2.11		Paint wood trim board at East Wing above Porch Roof. - Paint the porch	1	ea	$ 750.00	$ 750	$ 810	$ 932	$ 1,025	$ 1,025	
2.12	Ramp Porch:	Replace corroded post bases.	1	ea	$ 10,760.00	$ 10,760	$ 11,621	$ 13,364	$ 14,700	$ 14,700	
2.13		Replace rotted wood post bases near ramp entry.	1	ea	$ 830.00	$ 830	$ 896	$ 1,031	$ 1,134	$ 1,134	
2.14		Replace bottom rails at balusters near entry.	1	ea	$ 720.00	$ 720	$ 778	$ 894	$ 984	$ 984	
2.15		Replace edge of porch floor board and thresholds board between columns.	1	ea	$ 450.00	$ 450	$ 486	$ 559	$ 615	$ 615	
2.16		Replace lattice.	1	ea	$ 400.00	$ 400	$ 432	$ 497	$ 546	$ 546	
2.17		Recommend painting pressure-treated railing and balusters so it is more aesthetically appealing.	1	ea	$ 750.00	$ 750	$ 810	$ 932	$ 1,025	$ 1,025	
2.19		Install section of aluminum cap at water table by ramp for tight fit.	1	ea	$ 700.00	$ 700	$ 756	$ 869	$ 956	$ 956	
2.20		Paint wood casing at east door of East Wing. Repair and paint deteriorated corner boards and water table to right of door.	1	ea	$ 675.00	$ 675	$ 729	$ 838	$ 922	$ 922	
2.22		Clean and power wash mold-stained concrete stair at inside Corner Porch of East Wings.	1	ea	$ 450.00	$ 450	$ 486	$ 559	$ 615	$ 615	

	Facilities Assessment - Vermont Technical College		Quantity	Unit	Unit Price	Extension	With 8% GCs	With 15% Cont.	With 10% MU	Item Total	Grand Total
2.23		Paint pressure-treated railing at Porch.	1	ea	$ 150.00	$ 150	$ 162	$ 186	$ 205	$ 205	
2.24		Repair displaced vinyl siding on bulkhead enclosure.	1	ea	$ 150.00	$ 150	$ 162	$ 186	$ 205	$ 205	
2.25		Replace the column trim, frieze board and drip cap at gable outside Stair 132 at northeast corner, and any other rotted trim; and paint.	1	ea	$ 1,250.00	$ 1,250	$ 1,350	$ 1,553	$ 1,708	$ 1,708	
2.26		Paint pressure-treated railing at North Porch.	1	ea	$ 350.00	$ 350	$ 378	$ 435	$ 478	$ 478	
2.27		Replace/repair louvers at dormers along west elevation and install screen.	1	ea	$ 925.00	$ 925	$ 999	$ 1,149	$ 1,264	$ 1,264	
2.28		Paint wood rake and soffit trim at dormer where East Wing roof ties into Original Building.	1	ea	$ 175.00	$ 175	$ 189	$ 217	$ 239	$ 239	
2.29		Paint wood window sashes at door and sidelights from second floor RA Apartment to West Porch Roof.	1	ea	$ 250.00	$ 250	$ 270	$ 311	$ 342	$ 342	
2.30		Repair/replace wood trim and frame at bottom of door jambs.	1	ea	$ 250.00	$ 250	$ 270	$ 311	$ 342	$ 342	
2.33	LIFE SAFETY:	Increase Front and Southeast Porch railings to 42".	1	ea	$ 4,500.00	$ 4,500	$ 4,860	$ 5,589	$ 6,148	$ 6,148	
2.34	ACCESSIBILITY:	Make multi-user bathrooms compliant; including compliant counters and pipe protection.	1	ea		$ -	$ -	$ -	$ -	$ -	
2.35		Replace knob hardware with ADA-compliant lever style.	75	ea	$ 650.00	$ 48,750	$ 52,650	$ 60,548	$ 66,602	$ 66,602	
2.36		Replace knob hardware at interior stair doors with panic device and lever pulls.	12	ea	$ 650.00	$ 7,800	$ 8,424	$ 9,688	$ 10,656	$ 10,656	

	Facilities Assessment - Vermont Technical College		Quantity	Unit	Unit Price	Extension	With 8% GCs	With 15% Cont.	With 10% MU	Item Total	Grand Total
Conant Hall											
3.1	INTERIOR: General: Entrance Vestibules:	Strip and refinish floor rubber.	1	ea	$ 2,750	$ 2,750	$ 2,970	$ 3,416	$ 3,757	$ 3,757	
3.2		Replace bluestone tile at East Entrance.	1	ea	$ 8,250	$ 8,250	$ 8,910	$ 10,247	$ 11,271	$ 11,271	
3.3		Replace drinking fountain with ADA-compliant drinking fountain.	1	ea	$ 7,650	$ 7,650	$ 8,262	$ 9,501	$ 10,451	$ 10,451	
3.4	Lecture 102:	Replace low guard wall and railing at East Stair to be Code-compliant.	1	ea	$ 975	$ 975	$ 1,053	$ 1,211	$ 1,332	$ 1,332	
3.5	Labs 101, 103 and 104:	Adjust or replace sagging ceiling tiles in Labs 101 and 104.	1	ea	$ 3,870	$ 3,870	$ 4,180	$ 4,807	$ 5,287	$ 5,287	
3.6		Repair broken hopper window in Lab 103.	1	ea	$ 350	$ 350	$ 378	$ 435	$ 478	$ 478	
3.7	Second Floor Seating Areas:	Strip and refinish floor rubber (Hall 236 and 242).	1	ea	$ 11,000	$ 11,000	$ 11,880	$ 13,662	$ 15,028	$ 15,028	
3.8		Replace failed insulated glass panel in Hall 242.	1	ea	$ 2,700	$ 2,700	$ 2,916	$ 3,353	$ 3,689	$ 3,689	
3.9	Stairs:	Strip and refinish rubber treads and landings at stairs.	1	ea	$ 2,050	$ 2,050	$ 2,214	$ 2,546	$ 2,801	$ 2,801	
3.10	Unisex Bathroom 214:	Adjust fixtures and grab bars to be ADA compliant.	1	ea	$ 5,590	$ 5,590	$ 6,037	$ 6,943	$ 7,637	$ 7,637	
3.11		Add pipe guard in Unisex Bathroom 214.	1	ea	$ 125	$ 125	$ 135	$ 155	$ 171	$ 171	
3.12	EXTERIOR: Windows:	Schedule window replacement for energy efficiency.	1	ea	$ 27,300	$ 27,300	$ 29,484	$ 33,907	$ 37,297	$ 37,297	
3.13	Roof:	Replace white PVC (Trocal) roofing system.	1	ea	$ 84,550	$ 84,550	$ 91,314	$ 105,011	$115,512	$115,512	
3.14	ACCESSIBILITY:	Convert Second Floor Unisex Bathroom to be ADA complaint.	1	ea	$ 5,590	$ 5,590	$ 6,037	$ 6,943	$ 7,637	$ 7,637	
3.15		Replace knob-style door hardware with ADA-complaint lever style.	65	ea	$ 650.00	$ 42,250	$ 45,630	$ 52,475	$ 57,722	$ 57,722	

	Facilities Assessment - Vermont Technical College		Quantity	Unit	Unit Price	Extension	With 8% GCs	With 15% Cont.	With 10% MU	Item Total	Grand Total
Judd Hall & Bookstore											
4.1	INTERIOR: Unisex Bathroom; West Vestibule:	Replace stained and damaged ceiling tiles.	6	ea	$ 16	$ 96	$ 104	$ 119	$ 131	$ 131	
4.2	Entry Hall/Lobby:	Replace linoleum.	1	ea	$ 1,650	$ 1,650	$ 1,782	$ 2,049	$ 2,254	$ 2,254	
4.3		Investigate above ceilings for leaks; correct issue and replaced stained/ damaged ceiling tiles.	1	ea	$ 1,500	$ 1,500	$ 1,620	$ 1,863	$ 2,049	$ 2,049	
4.4	Bathrooms; Gym Lobby:	Install missing ceiling tiles.	1	ea	$ 1,400	$ 1,400	$ 1,512	$ 1,739	$ 1,913	$ 1,913	
4.5	EXTERIOR:	Scrape and repaint CMU wall at Bookstore.	1	ea	$ 2,400	$ 2,400	$ 2,592	$ 2,981	$ 3,279	$ 3,279	
4.6	Lounge 108:	Confirm exterior wood door is sound; refinish or replaced.	1	ea	$ 3,000	$ 3,000	$ 3,240	$ 3,726	$ 4,099	$ 4,099	
4.7	Bookstore:	Confirm wood paneling above windows is sound; refinish or replace.	1	ea	$ 450	$ 450	$ 486	$ 559	$ 615	$ 615	
4.8	Windows:	Rake and replace failing mortar joints at interior stone stills with backer rod and sealant.	1	ea	$ 750	$ 750	$ 810	$ 932	$ 1,025	$ 1,025	
4.9		Replace exterior caulking with backer rod and sealant at windows	1	ea	$ 2,500	$ 2,500	$ 2,700	$ 3,105	$ 3,416	$ 3,416	
4.10	LIFE SAFETY:	South exterior exit at Gym is not Code compliant; correct stair, grade, guardrail, etc. to meet Code.	1	ea	$ 4,625	$ 4,625	$ 4,995	$ 5,744	$ 6,319	$ 6,319	
4.11		Second means of egress from Bookstore is not Code compliant; correct to meet Code.	1	ea	$ 7,500	$ 7,500	$ 8,100	$ 9,315	$ 10,247	$ 10,247	
4.12		Correct south exit from Lounge 108 to meet Code.	1	ea	$ 2,500	$ 2,500	$ 2,700	$ 3,105	$ 3,416	$ 3,416	
4.13	ACCESSIBILITY:	Add ADA Unisex sign to bathroom off West Vestibule.	1	ea	$ 45	$ 45	$ 49	$ 56	$ 61	$ 61	
4.14		Replace knob-style door hardware with ADA-compliant lever style	6	ea	$ 650	$ 3,900	$ 4,212	$ 4,844	$ 5,328	$ 5,328	

	Facilities Assessment - Vermont Technical College		Quantity	Unit	Unit Price	Extension	With 8% GCs	With 15% Cont.	With 10% MU	Item Total	Grand Total
Morrill Hall and Annex											
5.1	INTERIOR: Entrance Hall/Stair:	Remove and replace slate tile mortar.	1	ea	$ 2,500.00	$ 2,500	$ 2,700	$ 3,105	$ 3,416	$ 3,416	
5.2		Refinish rubber.	1	ea	$ 5,500.00	$ 5,500	$ 5,940	$ 6,831	$ 7,514	$ 7,514	
5.3		Pair of doors off 'rated' Hall 123 into Lab 119 are not rated; replace.	1	ea	$ 24,200.00	$ 24,200	$ 26,136	$ 30,056	$ 33,062	$ 33,062	
5.4	Wood Shop 106:	Doors, frames and large window are not UL rated.	1	ea	$ 3,025.00	$ 3,025	$ 3,267	$ 3,757	$ 4,133	$ 4,133	
5.5	Vet Office Suite:	PLAM counter and sink are not ADA compliant.	1	ea	$ 3,900.00	$ 3,900	$ 4,212	$ 4,844	$ 5,328	$ 5,328	
5.6		Add pipe cover or screen.	1	ea	$ 125.00	$ 125	$ 135	$ 155	$ 171	$ 171	
5.7	Storage 109:	Sink is not working.	1	ea	$ 3,500.00	$ 3,500	$ 3,780	$ 4,347	$ 4,782	$ 4,782	
5.8		Replace missing vinyl base below cabinet.	1	ea	$ 25.00	$ 25	$ 27	$ 31	$ 34	$ 34	
5.9	First Floor - Annex; Corridor:	Investigate above ceiling for leak; replace stained tile.	1	ea	$ 2,500.00	$ 2,500	$ 2,700	$ 3,105	$ 3,416	$ 3,416	
5.10	East Entry Vestibule:	Clean or replace rubber near exterior doors.	1	ea	$ 2,200.00	$ 2,200	$ 2,376	$ 2,732	$ 3,006	$ 3,006	
5.11		Scrape and paint brick wall near exterior doors.	1	ea	$ 450.00	$ 450	$ 486	$ 559	$ 615	$ 615	
5.12		Replace vinyl base as needed.	1	ea	$ 25.00	$ 25	$ 27	$ 31	$ 34	$ 34	
5.13		Replace rusted astragal at exterior steel doors.	1	ea	$ 450.00	$ 450	$ 486	$ 559	$ 615	$ 615	
5.14	Open Office 131 & Office Suite:	Strip and refinish VCT.	1	ea	$ 680.00	$ 680	$ 734	$ 845	$ 929	$ 929	
5.15	Classroom 139:	Replace damaged carpet.	1	ea	$ 3,025.00	$ 3,025	$ 3,267	$ 3,757	$ 4,133	$ 4,133	
5.16	Second Floor - Hall 225:	Replace the failed insulated glass panel.	1	ea	$ 2,700.00	$ 2,700	$ 2,916	$ 3,353	$ 3,689	$ 3,689	
5.17	Stair 223:	Repair concrete; install rubber treads and landing.	1	ea	$ 3,180.00	$ 3,180	$ 3,434	$ 3,950	$ 4,345	$ 4,345	
5.18	Hall 223:	Replace radiator.	1	ea	$ 4,500.00	$ 4,500	$ 4,860	$ 5,589	$ 6,148	$ 6,148	
5.19	Corridor:	Replace stained and damaged ceiling tiles.	1	ea	$ 160.00	$ 160	$ 173	$ 199	$ 219	$ 219	
5.20	Classroom 202 & Lab 204:	Replace SAC.	1	ea	$ 5,000.00	$ 5,000	$ 5,400	$ 6,210	$ 6,831	$ 6,831	
5.21	Lab 205:	Replace stained and damaged ceiling tiles.	1	ea	$ 200.00	$ 200	$ 216	$ 248	$ 273	$ 273	
5.22	Physics Lab 208:	Replace SAC.	1	ea	$ 1,750.00	$ 1,750	$ 1,890	$ 2,174	$ 2,391	$ 2,391	
5.23	Windows:	Schedule window replacement at Morrill and Annex for improved energy efficiency.	1	ea	$ 39,000.00	$ 39,000	$ 42,120	$ 48,438	$ 53,282	$ 53,282	
5.24	EXTERIOR:	Evaluate and repair painted, insulated spandrel panels in aluminum frames.	1	ea	$ 4,320.00	$ 4,320	$ 4,666	$ 5,365	$ 5,902	$ 5,902	

	Facilities Assessment - Vermont Technical College		Quantity	Unit	Unit Price	Extension	With 8% GCs	With 15% Cont.	With 10% MU	Item Total	Grand Total
5.25	Mechanical Room 100:	Paint steel door, frame and sidelight of north door and east doors and frames.	1	ea	$ 185.00	$ 185	$ 200	$ 230	$ 253	$ 253	
5.26		Consider adding a step to the east doors; current step is 12".	1	ea	$ 365.00	$ 365	$ 394	$ 453	$ 499	$ 499	
5.27	Open Office 131 & Office Suite:	Scrape, seal and paint vertical tongue-and-groove wood siding.	1	ea	$ 300.00	$ 300	$ 324	$ 373	$ 410	$ 410	
5.28	Annex:	Seal crack in EIFS fascia to right of window on west side.	1	ea	$ 350.00	$ 350	$ 378	$ 435	$ 478	$ 478	
5.29	Morrill West Entrance:	Replace deteriorated concrete stair.	1	ea	$ 4,850.00	$ 4,850	$ 5,238	$ 6,024	$ 6,626	$ 6,626	
5.30		Replace steel pipe railing with Code-compliant railing; add a center rail.	3	ea	$ 3,330.00	$ 9,990	$ 10,789	$ 12,408	$ 13,648	$ 13,648	
	West Entrance Porch:	Replace broken bricks and repoint joints in this area.	1	ea	$ 750.00	$ 750	$ 810	$ 932	$ 1,025	$ 1,025	
5.32	Accessibility:	Replace knob-style hardware with ADA-compliant lever style.	100	ea	$ 650	$ 65,000	$ 70,200	$ 80,730	$ 88,803	$ 88,803	

	Facilities Assessment - Vermont Technical College		Quantity	Unit	Unit Price	Extension	With 8% GCs	With 15% Cont.	With 10% MU	Item Total	Grand Total
Robert Clark Hall											
6.1	INTERIOR: Vestibule 126:	VCT is damaged at door threshold, repair.	1	Allow.	$ 375	$ 375	$ 405	$ 466	$ 512	$ 512	
6.2		Bottom of astragal is corroded at exterior aluminum door frame, replace.	1	Allow.	$ 450.00	$ 450	$ 486	$ 559	$ 615	$ 615	
6.3	Stairs (all floors):	Refinish rubber treads, risers and landings at lower runs.	1	Allow.	$ 6,360	$ 6,360	$ 6,869	$ 7,899	$ 8,689	$ 8,689	
6.4		Remove rust from steel stringers at bottom landings.	1	Allow.	$ 500	$ 500	$ 540	$ 621	$ 683	$ 683	
6.5		Repaint all steel.	1	Allow.	$ 3,000	$ 3,000	$ 3,240	$ 3,726	$ 4,099	$ 4,099	
6.6	Computer Lab 110	Paint patched area to match.'	1	Allow.	$ 175	$ 175	$ 189	$ 217	$ 239	$ 239	
6.7	Office and Computer Labs:	Investigate cause of leaks, correct issue and replace damaged tiles.	1	Allow.	$ 2,500	$ 2,500	$ 2,700	$ 3,105	$ 3,416	$ 3,416	
6.8	Third Floor: Lounge with Kitchenette:	Replace carpet.	1	Allow.	$ 1,650	$ 1,650	$ 1,782	$ 2,049	$ 2,254	$ 2,254	
6.9	Windows:	Clear-coated wood sills will need refinishing in 3-5 years.	1	Allow.	$ 2,700	$ 2,700	$ 2,916	$ 3,353	$ 3,689	$ 3,689	
6.10		Replace exterior caulking with backer rod and sealant in color to match aluminum windows.	1	Allow.	$ 5,700	$ 5,700	$ 6,156	$ 7,079	$ 7,787	$ 7,787	
6.11	EXTERIOR:	Replace compressible filler at masonry expansion joints in 3-5 years.	1	Allow.	$ 630	$ 630	$ 680	$ 782	$ 861	$ 861	
6.12		Remove rust and paint large, round steel column at Main Entrance Porch.	1	Allow.	$ 450	$ 450	$ 486	$ 559	$ 615	$ 615	
6.13		Repair or replace cracked brick pavers at the Main Entrance Courtyard.	1	Allow.	$ 1,200	$ 1,200	$ 1,296	$ 1,490	$ 1,639	$ 1,639	
6.14		Replace caulking at storefront with backer rod and sealant in color to match aluminum storefront.	1	Allow.	$ 145	$ 145	$ 157	$ 180	$ 198	$ 198	
6.15		Rake and repoint failed masonry joints at the split-face CMU; southwest corner above mechanical enclosure.	1	Allow.	$ 1,250	$ 1,250	$ 1,350	$ 1,553	$ 1,708	$ 1,708	
6.16		Replace white movement joints with compressible filler.	1	Allow.	$ 1,000	$ 1,000	$ 1,080	$ 1,242	$ 1,366	$ 1,366	
6.17		Rake and repoint failed masonry joints at the smooth-face CMU; west side, lower floor.	1	Allow.	$ 2,000	$ 2,000	$ 2,160	$ 2,484	$ 2,732	$ 2,732	

	Facilities Assessment - Vermont Technical College		Quantity	Unit	Unit Price	Extension	With 8% GCs	With 15% Cont.	With 10% MU	Item Total	Grand Total
Green Hall & Greenhouse											
7.1	INTERIOR: Labs:	Replace SAC ceiling that is in fair-to-poor condition.	1	ea	$ 5,000.00	$ 5,000	$ 5,400	$ 6,210	$ 6,831	$ 6,831	
7.2	Civil Lab G101A:	Replace weather seals at exterior egress doors; northwest corner.	1	ea	$ 650.00	$ 650	$ 702	$ 807	$ 888	$ 888	
7.3	Civil Lab G101B:	Replace rusted steel door and frame with sidelight.	1	ea	$ 2,775.00	$ 2,775	$ 2,997	$ 3,447	$ 3,791	$ 3,791	
7.4	First Floor; Main Entrance Vestibule:	Replace single-glazed entrance doors, weather seals and hardware including thresholds.	1	ea	$ 4,675.00	$ 4,675	$ 5,049	$ 5,806	$ 6,387	$ 6,387	
7.5	Office 102:	Replace steel door and frame into office with UL-labeled door and frame.	1	ea	$ 1,625.00	$ 1,625	$ 1,755	$ 2,018	$ 2,220	$ 2,220	
7.6	Office 103:	Rake cracked CMU wall joints, repoint, and paint to match.	1	ea	$ 275.00	$ 275	$ 297	$ 342	$ 376	$ 376	
7.7		Replace door and frame with UL-labeled door and frame.	1	ea	$ 1,625.00	$ 1,625	$ 1,755	$ 2,018	$ 2,220	$ 2,220	
7.8	Stairs in Rated Enclosures:	Refinish vinyl on wood treads, risers, painted steel and vinyl-covered wood plank landings.	1	ea	$ 7,044.00	$ 7,044	$ 7,608	$ 8,749	$ 9,624	$ 9,624	
7.10	Corridors:	Replace Doors and Frames 114, 116,117, and 128 with UL-labeled doors and frames.	1	ea	$ 6,500.00	$ 6,500	$ 7,020	$ 8,073	$ 8,880	$ 8,880	
7.12	Faculty Lounge/Copy Room:	Replace PLAM counter to 34" maximum to meet ADA Code.	1	ea	$ 2,340.00	$ 2,340	$ 2,527	$ 2,906	$ 3,197	$ 3,197	
7.13	First Floor Horticulture Labs:	Refinish epoxy-coated floors in Electrical Engineering Lab.	1	ea	$ 12,000.00	$ 12,000	$ 12,960	$ 14,904	$ 16,394	$ 16,394	
7.14		Check above ceiling for leak; once assured on no leakage, replace stained tile in Renewable Energy Lab.	1	ea	$ 2,500.00	$ 2,500	$ 2,700	$ 3,105	$ 3,416	$ 3,416	
7.15	Storage 111:	Replace the compression spring hold-open arms on access ladder and hatch.	1	ea	$ 250.00	$ 250	$ 270	$ 311	$ 342	$ 342	
7.16		Add a second safety rail or an Ez-Up safety post on access ladder.	1	ea	$ 450.00	$ 450	$ 486	$ 559	$ 615	$ 615	
7.17		Paint roof deck at Mechanical Mezzanine.	1	ea	$ 500.00	$ 500	$ 540	$ 621	$ 683	$ 683	
7.18	Second Floor; Corridors:	Replace Doors and Frames 210, 217 and 228 with UL-labeled doors and frames.	1	ea	$ 4,875.00	$ 4,875	$ 5,265	$ 6,055	$ 6,660	$ 6,660	
7.19	Egress Stair from East Electrical Lab:	Prepare and paint painted metal deck.	1	ea	$ 100.00	$ 100	$ 108	$ 124	$ 137	$ 137	

7.20		Exterior door at bottom of stair is approximately 12" from bottom riser; correct to be Code compliant.	1	ea	$ -	$ -	$ -	$ -	$ -	$ -	
7.21	Windows:	Survey and replace all failed window joints with backer rod and sealant.- Based on 100	1	ea	$ 9,500.00	$ 9,500	$ 10,260	$ 11,799	$ 12,979	$ 12,979	
7.22		Replace all failed insulated glass panels.	1	ea	$ 2,160.00	$ 2,160	$ 2,333	$ 2,683	$ 2,951	$ 2,951	
7.23	EXTERIOR:	Replace all aluminum entrances.	1	ea	$ 26,500.00	$ 26,500	$ 28,620	$ 32,913	$ 36,204	$ 36,204	
7.24		Inspect joints and replace the joint material with compressible foam tape within the next 2-3 years.	1	ea	$ 630	$ 630	$ 680	$ 782	$ 861	$ 861	
7.25		Clean and power wash board-formed battered concrete site walls around Main Entrance Courtyard.	1	ea	$ 7,500.00	$ 7,500	$ 8,100	$ 9,315	$ 10,247	$ 10,247	
7.26		Add a guard rail on top of the retaining wall at 42".	1	ea	$ 11,000.00	$ 11,000	$ 11,880	$ 13,662	$ 15,028	$ 15,028	
7.27		Repair spalling and cracking on concrete retaining wall.	1	ea	$ 3,500.00	$ 3,500	$ 3,780	$ 4,347	$ 4,782	$ 4,782	
7.28		Replace brick paver that are heaved, cracked or missing at northwest corner.	1	ea	$ 960.00	$ 960	$ 1,037	$ 1,192	$ 1,312	$ 1,312	
7.29		Repair/patch asphalt paving as needed.	1	ea	$ 800.00	$ 800	$ 864	$ 994	$ 1,093	$ 1,093	
7.30		Remove Ivy at Main Entrance Courtyard.	1	ea	$ 250.00	$ 250	$ 270	$ 311	$ 342	$ 342	
7.31		Clean/pressure wash precast concrete vent screen panels at exhaust grilles.	1	ea	$ 1,350.00	$ 1,350	$ 1,458	$ 1,677	$ 1,844	$ 1,844	
7.32		Add railing at edge of asphalt paved ramp to Main Entrance Courtyard.	1	ea	$ 2,200.00	$ 2,200	$ 2,376	$ 2,732	$ 3,006	$ 3,006	
7.33		Replace painted red sheathing panels with a more-durable material on east side.	1	ea	$ 11,200.00	$ 11,200	$ 12,096	$ 13,910	$ 15,301	$ 15,301	
7.34		Repair/replace brick pavers that are frost heaved and uneven at the entrance to Stair 138.1.	1	ea	$ 300.00	$ 300	$ 324	$ 373	$ 410	$ 410	
7.35	Roof:	Replace white PVC roofing over Horticulture Wing.	1	ea	$ 30,400.00	$ 30,400	$ 32,832	$ 37,757	$ 41,532	$ 41,532	
7.36	ACCESSIBILITY:	ADA-compliant entrance to the lower level civil labs.	1	ea	$ 3,500.00	$ 3,500	$ 3,780	$ 4,347	$ 4,782	$ 4,782	
7.39		Replace knob-style door hardware with Code-compliant lever style.	120	ea	$ 650.00	$ 78,000	$ 84,240	$ 96,876	$ 106,564	$ 106,564	

	Facilities Assessment - Vermont Technical College		Quantity	Unit	Unit Price	Extension	With 8% GCs	With 15% Cont.	With 10% MU	Item Total	Grand Total
Hartness Library											
8.1	INTERIOR: First Floor: Library:	Remove soiled carpet approximately 10' from Vestibule doors and replace with more-durable, glue-down, walk-off mat.	6	ea	$ 1,600.00	$ 9,600	$ 10,368	$ 11,923	$ 13,116	$ 13,116	
8.2		Investigate cause of damaged GWB at East Vestibule and repair.	1	ea	$ 2,500.00	$ 2,500	$ 2,700	$ 3,105	$ 3,416	$ 3,416	
8.3		Investigate cause of ceiling leak, repair and replace damaged ceiling tiles.	1	ea	$ 2,500.00	$ 2,500	$ 2,700	$ 3,105	$ 3,416	$ 3,416	
8.4	Unisex ADA Bathroom:	Door swings into the required sink clearance space; correct.	1	ea		$ -	$ -	$ -	$ -	$ -	
8.5	Break Room:	Add pipe cover or screen under sink.	1	ea	$ 125.00	$ 125	$ 135	$ 155	$ 171	$ 171	
8.6	EXTERIOR:	Clean/pressure wash saturated, dirty and moldy bricks.	1	ea	$ 7,200.00	$ 7,200	$ 7,776	$ 8,942	$ 9,837	$ 9,837	
8.7		Clean/pressure wash board-formed, battered concrete.	1	ea	$ 4,800.00	$ 4,800	$ 5,184	$ 5,962	$ 6,558	$ 6,558	
8.8		Paint the soffit including the trim bead at wall.	1	ea	$ 1,248.00	$ 1,248	$ 1,348	$ 1,550	$ 1,705	$ 1,705	
8.9	Roof:	Schedule white EPDM membrane roof replacement.	1	ea	$ 82,230.00	$ 82,230	$ 88,808	$ 102,130	$ 112,343	$ 112,343	
8.10	ACCESSIBILITY:	Add pipe cover or screen under sink at Kitchenette.	1	ea	$ 125.00	$ 125	$ 135	$ 155	$ 171	$ 171	
8.11		Replace knob-style door hardware with ADA-compliant lever style.	6	ea	$ 650.00	$ 3,900	$ 4,212	$ 4,844	$ 5,328	$ 5,328	

	Facilities Assessment - Vermont Technical College		Quantity	Unit	Unit Price	Extension	With 8% GCs	With 15% Cont.	With 10% MU	Item Total	Grand Total
Morey Hall											
9.1	INTERIOR: Main Entrance Vestibule:	Patch and paint column wrap to match existing.	1	ea	$ 90.00	$ 90	$ 97	$ 112	$ 123	$ 123	
9.2		Replace damaged door at bottom of stair.	1	ea	$ 1,150.00	$ 1,150	$ 1,242	$ 1,428	$ 1,571	$ 1,571	
9.3	Main Entrance Lobby:	Adjust Mail Room/Office Service Counter to meet ADA Requirements.	1	ea	$ 2,400.00	$ 2,400	$ 2,592	$ 2,981	$ 3,279	$ 3,279	
9.4		Paint wood door to Women's Room to match Men's Room.	1	ea	$ 110.00	$ 110	$ 119	$ 137	$ 150	$ 150	
9.5	Women's Bathroom:	Replace missing PLAM on front of counter nosing.	1	ea	$ 25.00	$ 25	$ 27	$ 31	$ 34	$ 34	
9.6	Men's Bathroom:	Replace ceiling tiles that are in poor condition.	1	ea	$ 250.00	$ 250	$ 270	$ 311	$ 342	$ 342	
9.7		Replace missing PLAM pipe screen.	1	ea	$ 100.00	$ 100	$ 108	$ 124	$ 137	$ 137	
9.8	Dining Room/Service Line:	Replace stained or damaged ceiling tiles.	1	ea	$ 600.00	$ 600	$ 648	$ 745	$ 820	$ 820	
9.9	Student Radio Station:	Replace carpet and vinyl base.	1	ea	$ 2,050.00	$ 2,050	$ 2,214	$ 2,546	$ 2,801	$ 2,801	
9.10	Corridor 104	Replace VCT and vinyl base.	1	ea	$ 1,800.00	$ 1,800	$ 1,944	$ 2,236	$ 2,459	$ 2,459	
9.11	West Wing:	Renovate finishes at "back of house".	1	ea	$ 67,500.00	$ 67,500	$ 72,900	$ 83,835	$ 92,219	$ 92,219	
9.12		Asbestos abatement removal - Allowance	1	ea	$ 15,000.00	$ 15,000	$ 16,200	$ 18,630	$ 20,493	$ 20,493	
9.13		Renovate bathrooms to meet ADA requirements.- See reno above	1	ea		$ -	$ -	$ -	$ -	$ -	
9.14		Replace all doors in the Loading Dock area.	10	ea		$ -	$ -	$ -	$ -	$ -	
9.15	Basement Mechanical Area:	Paint CMU stair walls.	1	ea	$ 750.00	$ 750	$ 810	$ 932	$ 1,025	$ 1,025	
9.16		Vinyl composite treads and concrete risers in poor condition, replace.	1	ea	$ 1,900.00	$ 1,900	$ 2,052	$ 2,360	$ 2,596	$ 2,596	
9.17		Replace painted steel guard rail and railings; not Code compliant.	1	ea	$ 5,740.00	$ 5,740	$ 6,199	$ 7,129	$ 7,842	$ 7,842	
9.18		Install missing vinyl base.	1	ea	$ 27.50	$ 28	$ 30	$ 34	$ 38	$ 38	
9.19		Paint concrete ceiling.	1	ea	$ 400.00	$ 400	$ 432	$ 497	$ 546	$ 546	
9.20		Investigate several areas of standing water in Mechanical Rooms and Crawl Space.	1	ea		$ -	$ -	$ -	$ -	$ -	
9.21	Basement Below North Wing:	Replace VCT at floor landings.	1	ea	$ 512.00	$ 512	$ 553	$ 636	$ 699	$ 699	
9.22		Replace damaged stair rubber treads.	1	ea	$ 1,900.00	$ 1,900	$ 2,052	$ 2,360	$ 2,596	$ 2,596	
9.23		Paint concrete risers.	1	ea	$ 700.00	$ 700	$ 756	$ 869	$ 956	$ 956	
9.24		Replace missing base on both sides of door to North Stair.	1	ea	$ 27.50	$ 28	$ 30	$ 34	$ 38	$ 38	
9.25		Replace missing base in Lounge.	1	ea	$ 55.00	$ 55	$ 59	$ 68	$ 75	$ 75	

9.26		Install panic hardware on south corridor/stair door.	1	ea	$ 850.00	$ 850	$ 918	$ 1,056	$ 1,161	$ 1,161	
9.27		Patch and paint painted GWB walls in Laundry.	1	ea	$ 240.00	$ 240	$ 259	$ 298	$ 328	$ 328	
9.28	2nd and 3rd Floor Residence Halls:	Replace stair landings that are in poor condition.	1	ea	$ 5,280.00	$ 5,280	$ 5,702	$ 6,558	$ 7,214	$ 7,214	
9.29		Replace missing or damaged ceiling tiles in stairs.	1	ea	$ 300.00	$ 300	$ 324	$ 373	$ 410	$ 410	
9.30		Replace damaged stair rubber treads.	1	ea	$ 500.00	$ 500	$ 540	$ 621	$ 683	$ 683	
9.31		Paint concrete stair risers that are in poor condition.	1	ea	$ 6,300.00	$ 6,300	$ 6,804	$ 7,825	$ 8,607	$ 8,607	
9.32		Paint wall-mounted steel railings.	1	ea	$ 540.00	$ 540	$ 583	$ 671	$ 738	$ 738	
9.34		Rake and replace window sill mortar joints in Dining Hall.	1	ea	$ 570.00	$ 570	$ 616	$ 708	$ 779	$ 779	
9.35	EXTERIOR:	Replace asphalt paving at Main Entrance ramp with concrete.	1	ea	$ 1,500.00	$ 1,500	$ 1,620	$ 1,863	$ 2,049	$ 2,049	
9.36		Paint steel columns and railings at Main Entrance.	1	ea	$ 750.00	$ 750	$ 810	$ 932	$ 1,025	$ 1,025	
9.37		Paint steel railings at concrete landing and steps - North and South Entrances.	1	ea	$ 550.00	$ 550	$ 594	$ 683	$ 751	$ 751	
9.38		Replace all failed control joints with backer rod and sealant; and monitor control joints.	1	ea	$ 5,760.00	$ 5,760	$ 6,221	$ 7,154	$ 7,869	$ 7,869	
9.39		Replace damaged bird screen at foundation louver on west side.	1	ea	$ 125.00	$ 125	$ 135	$ 155	$ 171	$ 171	
9.40		Repair and repoint damaged brick at corner near Loading Dock.	1	ea	$ 350.00	$ 350	$ 378	$ 435	$ 478	$ 478	
9.41		Remove or replace Loading Dock door at stair.	1	ea	$ 1,745.00	$ 1,745	$ 1,885	$ 2,167	$ 2,384	$ 2,384	
9.42		Replace steel open grate stair and railing at Loading Dock.	1	ea	$ 2,500.00	$ 2,500	$ 2,700	$ 3,105	$ 3,416	$ 3,416	
9.43		Remove rust and paint frame at Loading Dock opening.	1	ea	$ 250.00	$ 250	$ 270	$ 311	$ 342	$ 342	
9.44		Replace pair of Loading Dock doors.- See Reno scope	1	ea		$ -	$ -	$ -	$ -	$ -	
9.45		Add painted steel pipe guard rail at top of Loading Dock retaining wall to meet 42" Code requirement.	1	ea	$ 1,350.00	$ 1,350	$ 1,458	$ 1,677	$ 1,844	$ 1,844	
9.46		Replace two pairs of steel doors and frame and one single steel door and frame on west side of walk-out Basement and Mechanical Room.	5	ea	$ 7,575.00	$ 37,875	$ 40,905	$ 47,041	$ 51,745	$ 51,745	
9.47		Replace louvers on west wall.	2	ea	$ 375.00	$ 750	$ 810	$ 932	$ 1,025	$ 1,025	

9.49		Replace knob-style door hardware with ADA-compliant lever style.	150	ea	$ 650.00	$ 97,500	$ 105,300	$ 121,095	$ 133,205	$ 133,205	

	Facilities Assessment - Vermont Technical College		Quantity	Unit	Unit Price	Extension	With 8% GCs	With 15% Cont.	With 10% MU	Item Total	Grand Total
Keenan Hall											
10.1	INTERIOR: First Floor:	Refinish wood base.	1	ea	$ 826.00	$ 826	$ 892	$ 1,026	$ 1,128	$ 1,128	
10.2	Main Entrance Vestibule:	Replace glued-down walk-off mat.	1	ea	$ 1,500.00	$ 1,500	$ 1,620	$ 1,863	$ 2,049	$ 2,049	
10.3		Replace aluminum storefront.	1	ea		$ -	$ -	$ -	$ -	$ -	
10.4	Main Entrance Lobby:	Investigate and correct leak in ceiling.	1	ea	$ 2,500.00	$ 2,500	$ 2,700	$ 3,105	$ 3,416	$ 3,416	
10.5	Main Lounge:	Patch and paint curved GWB wall.	1	ea	$ 600.00	$ 600	$ 648	$ 745	$ 820	$ 820	
10.6		Replace dented and damaged metal ceiling tiles; reseat others as needed.	1	ea	$ 800.00	$ 800	$ 864	$ 994	$ 1,093	$ 1,093	
10.7	South Lounge/ Kitchenette:	Investigate and correct leak in ceiling; replace damaged ceiling tiles.	1	ea	$ 2,500.00	$ 2,500	$ 2,700	$ 3,105	$ 3,416	$ 3,416	
10.8		Install a pipe screen or ADA pipe covers under sink.	1	ea	$ 250.00	$ 250	$ 270	$ 311	$ 342	$ 342	
10.9	Mail Room:	Add a door from adjacent office or lounge to meet Code compliance.	1	ea	$ 2,600.00	$ 2,600	$ 2,808	$ 3,229	$ 3,552	$ 3,552	
10.10	Residential Wings A, B & C:	Replace carpet at floor landings.	1	ea	$ 6,048.00	$ 6,048	$ 6,532	$ 7,512	$ 8,263	$ 8,263	
10.11		Replace vinyl composite treads/ risers and immediate stair landings; replace where damaged.	1	ea	$ 13,500.00	$ 13,500	$ 14,580	$ 16,767	$ 18,444	$ 18,444	
10.12		Replace Carpet at Wing C.	1	ea	$ 4,400.00	$ 4,400	$ 4,752	$ 5,465	$ 6,011	$ 6,011	
10.13		Replace the Lounge stair treads and risers with rubber.	1	ea	$ 3,420.00	$ 3,420	$ 3,694	$ 4,248	$ 4,672	$ 4,672	
10.14		Install/replace seals/gasketing on all Lounge doors.	1	ea	$ 1,500.00	$ 1,500	$ 1,620	$ 1,863	$ 2,049	$ 2,049	
10.15		Consider painting walls in Showers/ Bathrooms to cover damaged finishes.	1	ea	$ 3,150.00	$ 3,150	$ 3,402	$ 3,912	$ 4,304	$ 4,304	
10.16	Accessible Apartment, First Floor of Wing A:	Install rubber base at GWB wall in Bathroom.	1	ea	$ 40.00	$ 40	$ 43	$ 50	$ 55	$ 55	
10.17		Adjust Bathroom to provide adequate ADA clearance.	1	ea		$ -	$ -	$ -	$ -	$ -	
10.18		Replace Kitchenette to meet ADA compliance.	1	ea	$ 4,850.00	$ 4,850	$ 5,238	$ 6,024	$ 6,626	$ 6,626	
10.19		Replace Bathroom toilet and grab bars to meet ADA compliance.	1	ea	$ 2,525.00	$ 2,525	$ 2,727	$ 3,136	$ 3,450	$ 3,450	

10.20	Infirmary:	Update one Kitchenette and cabinetry in one Exam Room to meet ADA compliance.	1	ea	$ 4,850.00	$ 4,850	$ 5,238	$ 6,024	$ 6,626	$ 6,626	
10.21		Adjust Bathroom to meet ADA compliance.	1	ea	$ 2,525.00	$ 2,525	$ 2,727	$ 3,136	$ 3,450	$ 3,450	
10.22	Residential Wing B:	Patch CMU wall, in kind, adjacent to Drinking Fountain.	1	ea	$ 250.00	$ 250	$ 270	$ 311	$ 342	$ 342	
10.23		Textured epoxy base in Bathroom showers is worn and damaged; replace.	1	ea	$ 950.00	$ 950	$ 1,026	$ 1,180	$ 1,298	$ 1,298	
10.24	Residential Wing C:	Textured epoxy base in 2nd Floor Bathroom showers is worn and damaged; replace.	1	ea	$ 950.00	$ 950	$ 1,026	$ 1,180	$ 1,298	$ 1,298	
10.25	Lounge 315:	Install vinyl base at GWB wall.	1	ea	$ 120.00	$ 120	$ 130	$ 149	$ 164	$ 164	
10.26	Attic:	Reinstall or replace fiberglass batts to provide continuous coverage.	1	ea	$ 720.00	$ 720	$ 778	$ 894	$ 984	$ 984	
10.27		Redistribute blown-in cellulose to provide continuous coverage.	1	ea	$ 175.00	$ 175	$ 189	$ 217	$ 239	$ 239	
10.28	Windows:	All windows are old and inefficient; replace.	1	ea		$ -	$ -	$ -	$ -	$ -	
10.29	EXTERIOR: Entrances:	Replace aluminum storefront (anodized	1	ea		$ -	$ -	$ -	$ -	$ -	
10.30		Repair or patch damaged EIFS panels; bottom near grade.	1	ea	$ 5,400.00	$ 5,400	$ 5,832	$ 6,707	$ 7,377	$ 7,377	
10.31		Clean/power wash stained/dirty brick along east side of Wing B and around Wing C.	1	ea	$ 1,512.00	$ 1,512	$ 1,633	$ 1,878	$ 2,066	$ 2,066	
10.34		Remove Ivy.	1	ea	$ 65.00	$ 65	$ 70	$ 81	$ 89	$ 89	
10.35		Repair damaged soffit and fascia board, north side of Wing B above stair exit door.	1	ea	$ 1,750.00	$ 1,750	$ 1,890	$ 2,174	$ 2,391	$ 2,391	
10.36	Roof:	Counterflashing reglets where flashing has been evicted and require lead wedges, backer rod and sealant.	1	ea	$ 450.00	$ 450	$ 486	$ 559	$ 615	$ 615	
10.37	LIFE SAFETY:	Adjust intermediate landing at South Egress Stair from Basement to meet Code requirements.	1	ea		$ -	$ -	$ -	$ -	$ -	
10.38		Adjust guard rails at top stair landing at Residential Wings to meet Code compliance of 42" AFF.	1	ea	$ 540.00	$ 540	$ 583	$ 671	$ 738	$ 738	
10.39		Adjust railing and guard rails at Lounges to meet Code compliance.	1	ea	$ 6,300.00	$ 6,300	$ 6,804	$ 7,825	$ 8,607	$ 8,607	
10.40	ACCESSIBILITY:	Add a pipe guard at sink in the South Lounge Kitchenette.	1	ea	$ 125.00	$ 125	$ 135	$ 155	$ 171	$ 171	
10.41		Replace knob-style door hardware with ADA-compliant lever style.	175	ea	$ 650.00	$ 113,750	$ 122,850	$ 141,278	$ 155,405	$ 155,405	$ 261,547

	Facilities Assessment - Vermont Technical College		Quantity	Unit	Unit Price	Extension	With 8% GCs	With 15% Cont.	With 10% MU	Item Total	Grand Total
President's House											
11.1	INTERIOR: Front Entry Hall & Back Entry:	Replace door sweep and weather seals on front and storm doors.	1	ea	$ 450.00	$ 450	$ 486	$ 559	$ 615	$ 615	
11.2	Kitchen:	Repair or replace oven.	1	ea	$ 2,300.00	$ 2,300	$ 2,484	$ 2,857	$ 3,142	$ 3,142	
11.3		Repair or replace under-cabinet lights.	1	ea	$ 240.00	$ 240	$ 259	$ 298	$ 328	$ 328	
11.4	Study:	Replace door sweep and weather seals at Patio doors.	1	ea	$ 650.00	$ 650	$ 702	$ 807	$ 888	$ 888	
11.5	Basement Stair:	Replace carpet.	1	ea	$ 525.00	$ 525	$ 567	$ 652	$ 717	$ 717	
11.6	Windows:	Refinish interior wood window sills within 3-5 years.	1	ea	$ 390.00	$ 390	$ 421	$ 484	$ 533	$ 533	
11.7	EXTERIOR:	Replace cedar shingles around Garage doors.	1	ea	$ 225.00	$ 225	$ 243	$ 279	$ 307	$ 307	
11.10		Replace deteriorated/damaged wood trim around Garage doors.	1	ea	$ 350.00	$ 350	$ 378	$ 435	$ 478	$ 478	
11.11		Replace bend Garage door weather seals.	1	ea	$ 330.00	$ 330	$ 356	$ 410	$ 451	$ 451	
11.12		Replace cedar shingles below second floor window on south side.	1	ea	$ 480.00	$ 480	$ 518	$ 596	$ 656	$ 656	
11.13		Wood privacy screen fence on the west side of house is leaning; investigate and repair as needed.	1	ea	$ 850.00	$ 850	$ 918	$ 1,056	$ 1,161	$ 1,161	
11.14		Remove/replace slate mortar joints at slate at front porch and steps.	1	ea	$ 1,500.00	$ 1,500	$ 1,620	$ 1,863	$ 2,049	$ 2,049	
11.15		Repair appearance of spalling concrete/patching on front porch risers.	1	ea	$ 1,500.00	$ 1,500	$ 1,620	$ 1,863	$ 2,049	$ 2,049	
11.16		Paint bottom of front door sidelights.	1	ea	$ 105.00	$ 105	$ 113	$ 130	$ 143	$ 143	
11.17		Replace Basement wood windows in corrugated, galvanized window wells.	1	ea	$ 2,700.00	$ 2,700	$ 2,916	$ 3,353	$ 3,689	$ 3,689	
11.18	Roof:	Hire an experienced professional to evaluate the cedar shingle roof.	1	Allow.		$ -	$ -	$ -	$ -	$ -	$ 17,207

	Facilities Assessment - Vermont Technical College		Quantity	Unit	Unit Price	Extension	With 8% GCs	With 15% Cont.	With 10% MU	Item Total	Grand Total
SHAPE Facility & Campus Center											
12.1	INTERIOR: South Entrance Vestibule:	Replace damaged ceiling tiles.	1	ea	$ 225.00	$ 225	$ 243	$ 279	$ 307	$ 307	
12.2	Corridor; Clearstory to Dining Room:	Investigate cracks/heaves in concrete slab; correct issues.	1	ea		$ -	$ -	$ -	$ -	$ -	
12.3		Repair/replace VCT flooring as needed once conrete issue has been corrected.	1	ea	$ 1,800.00	$ 1,800	$ 1,944	$ 2,236	$ 2,459	$ 2,459	
12.4		Repaint steel pipe railings at ramp.	1	ea	$ 1,000.00	$ 1,000	$ 1,080	$ 1,242	$ 1,366	$ 1,366	
12.5	Corridor & Ramps towards SHAPE:	Install missing base adjacent to doors into SHAPE.	1	ea	$ 18.00	$ 18	$ 19	$ 22	$ 25	$ 25	
12.7	Dining Room:	Strip and refinish concrete epoxy coating.	1	ea	$ 5,000.00	$ 5,000	$ 5,400	$ 6,210	$ 6,831	$ 6,831	
12.8		Replace all rubber stair treads and risers at Lounge area.	1	ea	$ 660.00	$ 660	$ 713	$ 820	$ 902	$ 902	
12.9	Fitness Room:	Repair/paint GWB wall.	1	ea	$ 120.00	$ 120	$ 130	$ 149	$ 164	$ 164	
12.10		Investigate source of leak, repair leak and replaced damaged ceiling tiles.	1	ea	$ 2,500.00	$ 2,500	$ 2,700	$ 3,105	$ 3,416	$ 3,416	
12.11		Paint steel pipe railing at north ramp.	1	ea	$ 95.00	$ 95	$ 103	$ 118	$ 130	$ 130	
12.12	Multi-Purpose Room:	Replace transition strip.	1	ea	$ 140.00	$ 140	$ 151	$ 174	$ 191	$ 191	
12.13	SHAPE, First Floor: Reception/ Main Corridor:	Patch/repair GWB ceiling as needed; patch to match existing.	1	ea	$ 180.00	$ 180	$ 194	$ 224	$ 246	$ 246	
12.14		Replace carpet in Elevator.	1	ea	$ 400.00	$ 400	$ 432	$ 497	$ 546	$ 546	
12.15	Bathrooms:	Add pipe guards in sinks to meet Code compliance.	1	ea	$ 2,000.00	$ 2,000	$ 2,160	$ 2,484	$ 2,732	$ 2,732	
12.16	Gym:	Replace weather seals on exterior wood double doors; northwest corner of Gym.	1	ea	$ 900.00	$ 900	$ 972	$ 1,118	$ 1,230	$ 1,230	
12.17	Lower Floor: West Entrance Vestibule & Entry:	Replace weather seals on wood doors.	1	ea	$ 450.00	$ 450	$ 486	$ 559	$ 615	$ 615	
12.18	Pool:	Repoint cracked CMU joints at south end; paint to match existing.	1	ea	$ 100.00	$ 100	$ 108	$ 124	$ 137	$ 137	
12.19		Replace doors, casing, and heater as needed in Vestibule.	1	ea	$16,820.00	$ 16,820	$ 18,166	$ 20,890	$ 22,979	$ 22,979	
12.20	Main Corridor:	Investigate cracks/heaves in concrete slab; correct issues.	1	ea		$ -	$ -	$ -	$ -	$ -	
12.21		Repair/replace VCT flooring as needed once conrete issue has been corrected.	1	ea		$ -	$ -	$ -	$ -	$ -	

12.22		Investigate water damage at bottom of CMU walls and steel door frames at perimeter of Corridor; correct and repair/replace items as needed.	1	ea		$ -	$ -	$ -	$ -	$ -	
12.23		Install vinyl base at GWB walls; south end of Corridor.	1	ea	$ 30.00	$ 30	$ 32	$ 37	$ 41	$ 41	
12.24	Locker Room, Bathrooms & Shower Rooms:	Reconfigure to create ADA-compliant stall.	1	ea		$ -	$ -	$ -	$ -	$ -	
12.25	Windows:	Replace double-glazed, fixed wood windows with operable awnings on the north, east and south sides of Pool.	1	ea	$58,875.00	$ 58,875	$ 63,585	$ 73,123	$ 80,435	$ 80,435	
12.26	EXTERIOR: Entrances:	Replace double-glazed, wood, exterior entrances at Pool area.	1	ea	$ 7,500.00	$ 7,500	$ 8,100	$ 9,315	$ 10,247	$ 10,247	
12.27		Repair/replace solid phenolic rain screen panels at Campus Center.	1	ea		$ -	$ -	$ -	$ -	$ -	
12.28		Investigate asphalt sidewalk configuration to ensure ADA compliance.	1	ea		$ -	$ -	$ -	$ -	$ -	
12.29		Repair/replace brick pavers in west entrance Courtyard to remove any trip hazard.- 50%	1	ea	$25,000.00	$ 25,000	$ 27,000	$ 31,050	$ 34,155	$ 34,155	
12.30		Investigate cause of leaning at block retaining wall above Green Hall; repair if needed to ensure soundness.	1	ea	$ 4,800.00	$ 4,800	$ 5,184	$ 5,962	$ 6,558	$ 6,558	
12.31		Investigage potential water issue (mold growth) along bottom of brick walls at perimeter of pool and along west side. Clean brick.	1	ea		$ -	$ -	$ -	$ -	$ -	
12.32		Replace crumbling brick equipment screen, north side at lower floor Alcove.	1	ea	$ 320.00	$ 320	$ 346	$ 397	$ 437	$ 437	
12.33		Remove rust from steel lintel, steel louver and access panel in ceiling at lower floor Alcove and paint.	1	ea	$ 125.00	$ 125	$ 135	$ 155	$ 171	$ 171	
12.34		Remove rust from steel soffits in northwest corner of Gym and paint.	1	ea	$ 175.00	$ 175	$ 189	$ 217	$ 239	$ 239	
12.35	ACCESSIBILITY:	Reorganize bathrooms in SHAPE to be ADA compliant.	1	ea		$ -	$ -	$ -	$ -	$ -	
12.23		Add pipe guards to all sinks to meet Code compliance.	1	ea	$ 375.00	$ 375	$ 405	$ 466	$ 512	$ 512	$ 177,070

	Facilities Assessment - Vermont Technical College		Quantity	Unit	Unit Price	Extension	With 8% GCs	With 15% Cont.	With 10% MU	Item Total	Grand Total
Nutting Hall											
13.1	INTERIOR: General:	Replace radiation and metal covers.	1	ea	29400	$ 29,400	$ 31,752	$ 36,515	$ 40,166	$ 40,166	
13.2		Replace unit heaters in Lobbies and Lounges.	1	ea	$ 9,000.00	$ 9,000	$ 9,720	$ 11,178	$ 12,296	$ 12,296	
13.3	First Floor Shared Spaces; Main Entrance Vestibule:	Repair large crack in concrete slab.	1	ea	$ 275.00	$ 275	$ 297	$ 342	$ 376	$ 376	
13.4		Redo epoxy floor finish once concrete slab is repaired.	1	ea	$ 1,200.00	$ 1,200	$ 1,296	$ 1,490	$ 1,639	$ 1,639	
13.5		Replace ceiling tiles.	1	ea	$ 250.00	$ 250	$ 270	$ 311	$ 342	$ 342	
13.6		Refinish wood guard rails attached to aluminum storefront.	1	ea	$ 1,050.00	$ 1,050	$ 1,134	$ 1,304	$ 1,435	$ 1,435	
13.7	Main Entrance Lobby & Circulation Space:	Replace VCT and vinyl base.	1	ea	$ 6,750.00	$ 6,750	$ 7,290	$ 8,384	$ 9,222	$ 9,222	
13.8		Replace ceiling tiles.	1	ea	$ 11,250.00	$ 11,250	$ 12,150	$ 13,973	$ 15,370	$ 15,370	
13.9		Install ADA-compliant drinking fountain.	1	ea	$ 7,500.00	$ 7,500	$ 8,100	$ 9,315	$ 10,247	$ 10,247	
13.10	Lounge at Main Entrance:	Replace ceiling tiles near entrance.	1	ea	$ 1,050.00	$ 1,050	$ 1,134	$ 1,304	$ 1,435	$ 1,435	
13.11		Replace damaged ceiling tiles in larger Lounge area.	1	ea	$ 200.00	$ 200	$ 216	$ 248	$ 273	$ 273	
13.12		Adjust Kitchenette counter, sink, stove and island to be ADA compliant.	1	ea	$ 6,350.00	$ 6,350	$ 6,858	$ 7,887	$ 8,675	$ 8,675	
13.13		Repair one wall cabinet door - damaged.	1	ea	$ 125.00	$ 125	$ 135	$ 155	$ 171	$ 171	
13.14	Bathrooms at Main Lounge:	Replace sealant in failed corner joints; match existing.	1	ea	$ 150.00	$ 150	$ 162	$ 186	$ 205	$ 205	
13.15		Adjust Men's Room to meet ADA compliance.	1	ea	$ 150.00	$ 150	$ 162	$ 186	$ 205	$ 205	
13.16		Enclose exposed pipes.	1	ea	$ 125.00	$ 125	$ 135	$ 155	$ 171	$ 171	
13.17		Repair/paint or replace rusted metal access door adjacent to sink in Men's Room.	1	ea	$ 30.00	$ 30	$ 32	$ 37	$ 41	$ 41	
13.18	Mail Room/Office:	Replace VCT and vinyl base.	1	ea	$ 1,575.00	$ 1,575	$ 1,701	$ 1,956	$ 2,152	$ 2,152	
13.19		Paint CMU walls.	1	ea	$ 300.00	$ 300	$ 324	$ 373	$ 410	$ 410	
13.20		Replace SAC ceiling.	1	ea	$ 3,150.00	$ 3,150	$ 3,402	$ 3,912	$ 4,304	$ 4,304	
13.21		Adjust Service Counter to be ADA compliant.	1	ea	$ 2,920.00	$ 2,920	$ 3,154	$ 3,627	$ 3,989	$ 3,989	
13.22		Install missing mailboxes.	1	ea	$ 400.00	$ 400	$ 432	$ 497	$ 546	$ 546	
13.23	ADA Accessible Apartment:	Replace knob-style lockset with ADA-compliant lever style.	1	ea	$ 650.00	$ 650	$ 702	$ 807	$ 888	$ 888	

13.24	Open Stair to Lower Level Entry; 1st Floor of Wing B:	Replace VCT and vinyl base.	1	ea	$ 900.00	$ 900	$ 972	$ 1,118	$ 1,230	$ 1,230	
13.25		Replace rubber treads/risers.	1	ea	$ 1,900.00	$ 1,900	$ 2,052	$ 2,360	$ 2,596	$ 2,596	
13.26		Replace SAC ceiling tiles.	1	ea	$ 1,900.00	$ 1,900	$ 2,052	$ 2,360	$ 2,596	$ 2,596	
13.27		Replace guard rails and railings to be Code compliant.	1	ea	$ 5,750.00	$ 5,750	$ 6,210	$ 7,142	$ 7,856	$ 7,856	
13.28		Replace door into Wing B with UL-rated door, frame and hardware.	1	ea	$ 1,945.00	$ 1,945	$ 2,101	$ 2,416	$ 2,657	$ 2,657	
13.29	Lower Level Lounge/ Laundry Adjacent to Wing B:	Replace VCT.	1	ea	$ 4,500.00	$ 4,500	$ 4,860	$ 5,589	$ 6,148	$ 6,148	
13.30		Replace SAC ceiling.	1	ea	$ 9,500.00	$ 9,500	$ 10,260	$ 11,799	$ 12,979	$ 12,979	
13.31		Replace damaged light fixtures.	1	ea	$ 3,500.00	$ 3,500	$ 3,780	$ 4,347	$ 4,782	$ 4,782	
13.32	Residential Wings A & B: Stairs:	Clean and reseal rubber landings.	1	ea	$ 6,720.00	$ 6,720	$ 7,258	$ 8,346	$ 9,181	$ 9,181	
13.33		Clean and reseal rubber treads and risers; replace where damaged.	1	ea	$ 1,550.00	$ 1,550	$ 1,674	$ 1,925	$ 2,118	$ 2,118	
13.34		Replace knob-style lockset with ADA-compliant lever style.	1	ea	$ 3,900.00	$ 3,900	$ 4,212	$ 4,844	$ 5,328	$ 5,328	
13.35		Replace panic hardware and closers.	1	ea	$ 7,800.00	$ 7,800	$ 8,424	$ 9,688	$ 10,656	$ 10,656	
13.36		Vinyl base at bottom landing should be replaced.	1	ea	$ 50.00	$ 50	$ 54	$ 62	$ 68	$ 68	
13.37		Replace exterior door assembly and hardware at bottom of north stair of Wing A.	1	ea	$ 2,850.00	$ 2,850	$ 3,078	$ 3,540	$ 3,894	$ 3,894	
13.38		Repair spalled and cracked CMU at bottom landing of north stair of Wing A.	1	ea	$ 350.00	$ 350	$ 378	$ 435	$ 478	$ 478	
13.39	Corridors:	Evaluate finish options to clean or replace abuse-resistant panel wainscot.	1	ea		$ -	$ -	$ -	$ -	$ -	
13.40		Replace damaged/missing SAC ceiling tiles.	1	ea	$ 800.00	$ 800	$ 864	$ 994	$ 1,093	$ 1,093	
13.41		Replace knob-style lockset with ADA-compliant lever style.	1	ea	$ 11,700.00	$ 11,700	$ 12,636	$ 14,531	$ 15,985	$ 15,985	
13.42	Lounges (4):	Replace SAC ceiling tiles.	1	ea	$ 13,300.00	$ 13,300	$ 14,364	$ 16,519	$ 18,170	$ 18,170	
13.43		Evaluate and replace all failed mortar joints in window sills.	1	ea	$ 4,200.00	$ 4,200	$ 4,536	$ 5,216	$ 5,738	$ 5,738	
13.44		Replace non-Code-compliant open riser composite treads, railings and guard rails.	1	ea	$ 20,440.00	$ 20,440	$ 22,075	$ 25,386	$ 27,925	$ 27,925	
13.45		Install/replace seals/gasketing on all Lounge doors:	1	ea	$ 1,000.00	$ 1,000	$ 1,080	$ 1,242	$ 1,366	$ 1,366	
13.46		Replace knob-style lockset with ADA-compliant lever style.	1	ea	$ 2,600.00	$ 2,600	$ 2,808	$ 3,229	$ 3,552	$ 3,552	

13.47	Bathrooms & Shower Rooms:	Refinish wood bench at entry.	6	ea	$ 390.00	$ 2,340	$ 2,527	$ 2,906	$ 3,197	$ 3,197	
13.48		Replace stainless-steel or painted metal pipe enclosures, shower divider walls, and ceramic tile with pipe penetrations.	1	ea	$ 6,000.00	$ 6,000	$ 6,480	$ 7,452	$ 8,197	$ 8,197	
13.49		Repair, refinish or replace rusted/damaged doors and frames.	1	ea	$ 1,075.00	$ 1,075	$ 1,161	$ 1,335	$ 1,469	$ 1,469	
13.50	Dorm Rooms:	Survey caulk joints at base of CMU walls and replace as needed.	1	ea		$ -	$ -	$ -	$ -	$ -	
13.51	Second Floor: Lounge 220, Wing A:	Paint unfinished window trim; both sides.	1	ea	$ 70.00	$ 70	$ 76	$ 87	$ 96	$ 96	
13.52	EXTERIOR:	Replace hollow-metal doors and frames.	1	ea	$ 2,850.00	$ 2,850	$ 3,078	$ 3,540	$ 3,894	$ 3,894	
13.53		Patch damaged precast fascia panels and panels between windows; match existing.	1	ea	$ 5,000.00	$ 5,000	$ 5,400	$ 6,210	$ 6,831	$ 6,831	
13.55		Clean/power wash stained/dirty/moldy exposed board-formed batter concrete foundation walls.	1	ea	$ 2,520.00	$ 2,520	$ 2,722	$ 3,130	$ 3,443	$ 3,443	
13.56		Adjust grading and sidewalk at egress doors to Wing A North Stair and Wing B South Stair to eliminate water ponding.	1	ea	$ -	$ -	$ -	$ -	$ -	$ -	$ 288,077

	Facilities Assessment - Vermont Technical College		Quantity	Unit	Unit Price	Extension	With 8% GCs	With 15% Cont.	With 10% MU	Item Total	Grand Total
Construction Management Services, Automotive Technology and Fire Science Building											
14.1	INTERIOR: First Floor Automotive Technology & Fire Science:	Investigate possible slab high-moisture content.	1	ea		$ -	$ -	$ -	$ -	$ -	
14.3	Entrance Vestibule/Hall to Fire Science:	Seal around sprinkler pipe penetrations; paint to match.	1	ea	$ 35.00	$ 35	$ 38	$ 43	$ 48	$ 48	
14.4		Repair hole in ceiling above sprinkler pipe; paint to match.	1	ea	$ 125.00	$ 125	$ 135	$ 155	$ 171	$ 171	
14.5		Replace door weather seals.	1	ea	$ 375.00	$ 375	$ 405	$ 466	$ 512	$ 512	
14.6	Corridor 102:	Replace VCT.	1	ea	$ 1,800.00	$ 1,800	$ 1,944	$ 2,236	$ 2,459	$ 2,459	
14.7	Automotive Technology Classrooms & Offices:	Replace VCT.	1	ea	$ 6,300.00	$ 6,300	$ 6,804	$ 7,825	$ 8,607	$ 8,607	
14.8		Repair damaged GWB and paint. Match existing.	1	ea	$ 75.00	$ 75	$ 81	$ 93	$ 102	$ 102	
14.9		Replace vinyl base in kind.	1	ea	$ 15.00	$ 15	$ 16	$ 19	$ 20	$ 20	
14.10		Replace damaged wood doors at Classroom103.	1	ea	$ 1,930.00	$ 1,930	$ 2,084	$ 2,397	$ 2,637	$ 2,637	
14.11	Fire Science Garage:	Repair overhead door track for proper operation.	1	ea	$ 650.00	$ 650	$ 702	$ 807	$ 888	$ 888	
14.12	First Floor Construction Management Services; Single-Use ADA Bathroom 108:	Replace VCT.	1	ea	$ 450.00	$ 450	$ 486	$ 559	$ 615	$ 615	
14.13	Garage 113:	Replace door and hardware to meet ADA compliance.	1	ea	$ 650.00	$ 650	$ 702	$ 807	$ 888	$ 888	
14.14	Student Garage/ Welding 116:	Paint GWB walls.	1	ea	$ 625.00	$ 625	$ 675	$ 776	$ 854	$ 854	
14.15		Replace deteriorated exterior aluminum door frame.	1	ea	$ 6,595.00	$ 6,595	$ 7,123	$ 8,191	$ 9,010	$ 9,010	
14.16	EXTERIOR:	Clean the brick veneer masonry and check for water damage/intrusion.	1	ea	$ 2,880.00	$ 2,880	$ 3,110	$ 3,577	$ 3,935	$ 3,935	
14.17		Cut through-wall flashing at base of brick veneer back to face of brick.	1	ea	$ 480.00	$ 480	$ 518	$ 596	$ 656	$ 656	
14.18		Patch damaged areas of EIFS.	1	ea	$ 1,250.00	$ 1,250	$ 1,350	$ 1,553	$ 1,708	$ 1,708	

14.19		Repair EIFS above overhead door on north side of building.	1	ea	$ 1,250.00	$ 1,250	$ 1,350	$ 1,553	$ 1,708	$ 1,708	
14.20		Replace weather seals on overhead doors at north side of building.	1	ea	$ 1,050.00	$ 1,050	$ 1,134	$ 1,304	$ 1,435	$ 1,435	
14.22		Replace steel door frame at north side of Construction Management Services.	1	ea	$ 4,850.00	$ 4,850	$ 5,238	$ 6,024	$ 6,626	$ 6,626	
14.23		Rake and repoint failed mortar joints at split-face CMU pilaster; north side of Construction Management Services.	1	ea	$ 350.00	$ 350	$ 378	$ 435	$ 478	$ 478	
14.24		Paint steel columns at south entrance.	1	ea	$ 190.00	$ 190	$ 205	$ 236	$ 260	$ 260	
14.25		Paint steel door and frame; south side of Fire Science.	1	ea	$ 110.00	$ 110	$ 119	$ 137	$ 150	$ 150	
14.26	LIFE SAFETY:	Evaluate bringing wood-framed Loft/ Mezzanine at Fire Science Garage into Code compliance.	1	ea		$ -	$ -	$ -	$ -	$ -	
14.27	ACCESSIBILITY:	Replace grab bars in single-use Unisex Bathroom to meet ADA compliance.	1	ea	$ 150.00	$ 150	$ 162	$ 186	$ 205	$ 205	$ 43,971

	Facilities Assessment - Vermont Technical College		Quantity	Unit	Unit Price	Extension	With 8% GCs	With 15% Cont.	With 10% MU	Item Total	Grand Total
Facility Center											
15.1	INTERIOR: Offices & Closets:	Paint exterior walls that are telegraphing studs and fasteners.	1	ea	$ 540.00	$ 540	$ 583	$ 671	$ 738	$ 738	
15.2	Lounge:	Paint exterior walls that are telegraphing studs and fasteners.	1	ea	$ 360.00	$ 360	$ 389	$ 447	$ 492	$ 492	
15.3		Investigate above SAC for leaks. Replace stained tiles once leaks are corrected.	1	ea	$ 2,500.00	$ 2,500	$ 2,700	$ 3,105	$ 3,416	$ 3,416	
15.4	Stairs:	Paint exterior walls that are telegraphing studs and fasteners.	1	ea	$ 320.00	$ 320	$ 346	$ 397	$ 437	$ 437	
15.5	First (Main) Floor North of Entry Corridor: Shop, Shop Storage Rooms, Shop Offices, Shop Bathroom & Plan Room:	Install missing section of vinyl base on south wall under utility sink. Match existing.	1	ea	$ 15.00	$ 15	$ 16	$ 19	$ 20	$ 20	
15.6		Paint exterior walls that are telegraphing studs and fasteners.	1	ea	$ 540.00	$ 540	$ 583	$ 671	$ 738	$ 738	
15.7	Lower Floor: Storage:	Paint exterior walls that are telegraphing studs and fasteners.	1	ea	$ 200.00	$ 200	$ 216	$ 248	$ 273	$ 273	
15.8	Men's Bathroom:	Repaint CMU shower walls.	1	ea	$ 350.00	$ 350	$ 378	$ 435	$ 478	$ 478	
15.9	Garage:	Replace damaged vinyl base as needed, in kind.	1	ea	$ 50.00	$ 50	$ 54	$ 62	$ 68	$ 68	
15.10		Paint exterior walls that are telegraphing studs and fasteners.	1	ea	$ 500.00	$ 500	$ 540	$ 621	$ 683	$ 683	
15.11		Replace dirty/sagging/missing SAC ceiling tiles.	1	ea	$ 1,518.00	$ 1,518	$ 1,639	$ 1,885	$ 2,074	$ 2,074	
15.12		Evaluate bringing Mezzanine into Code compliance.	1	ea		$ -	$ -	$ -	$ -	$ -	
15.13	Heating Plant:	Saw cut and remove badly-spalled and cracked concrete slab; patch in kind.	1	ea	$ 1,280.00	$ 1,280	$ 1,382	$ 1,590	$ 1,749	$ 1,749	
15.14		Scrape and paint CMU wall areas where paint is peeling; match existing.	1	ea	$ 600.00	$ 600	$ 648	$ 745	$ 820	$ 820	
15.15		Install foam-in-place insulation around all pipe penetrations and then sealant.	1	ea	$ 210.00	$ 210	$ 227	$ 261	$ 287	$ 287	
15.16		Remove rust from steel girts and paint. Match existing.	150	LF	$ 8.00	$ 1,200	$ 1,296	$ 1,490	$ 1,639	$ 1,639	

15.18		Cut out badly-rusted, painted-steel frame below just below door head, remove and replace the steel door jambs. Continuously weld the jambs to the head and grind smooth. Replace steel door and hardware, including threshold. Paint door and entire frame.	1	ea	$ 3,335.00	$ 3,335	$ 3,602	$ 4,142	$ 4,556	$ 4,556	
15.19		Replace overhead coiling door on north wall. Paint steel-framed transom above overhead door.	1	ea	$ 2,350.00	$ 2,350	$ 2,538	$ 2,919	$ 3,211	$ 3,211	
15.20		Replace clerestory windows and louvers on east wall.	1	ea	$ 10,560.00	$ 10,560	$ 11,405	$ 13,116	$ 14,427	$ 14,427	
15.21	EXTERIOR: Windows:	Replace failed joints with backer rod and sealant. Replace remainder within 2 years.	1	ea	$ 700.00	$ 700	$ 756	$ 869	$ 956	$ 956	
15.22	Entrances:	Paint exterior door and frame at Main Entrance.	1	ea	$ 110.00	$ 110	$ 119	$ 137	$ 150	$ 150	
15.24	General:	Evaluation needed by a professional to address possible water saturation in brick and CMU veneer cavity.	1	ea		$ -	$ -	$ -	$ -	$ -	
15.25		Remove and replace cracked caulking around CMU pilaster keys with backer rod and sealant.	1	ea	$ 1,250.00	$ 1,250	$ 1,350	$ 1,553	$ 1,708	$ 1,708	
15.26		Repair and paint CIP concrete at northwest corner of Heating Plant when fascia meets corner pilaster.	1	ea	$ 125.00	$ 125	$ 135	$ 155	$ 171	$ 171	
15.27		Repair and paint CIP concrete at west corner of Heating Plant to left of louver.	1	ea	$ 125.00	$ 125	$ 135	$ 155	$ 171	$ 171	
15.28		Apply silane sealer to hairline cracks in brick chimney at west side of Heating Plant. Rake and repoint larger cracks. Replace deteriorated cap.	1	ea	$ 350.00	$ 350	$ 378	$ 435	$ 478	$ 478	
15.29		Investigate unusual flashing solution at both sides of brick chimney where it engages just below the metal fascia.	1	ea		$ -	$ -	$ -	$ -	$ -	
15.30		Replace salt-damaged 4" CMU wall at ramp.	1	ea	$ 3,340.00	$ 3,340	$ 3,607	$ 4,148	$ 4,563	$ 4,563	
15.31		Remove surface rust and paint round steel columns at Entry Porch and steel pipe railings at ramp and stair.	1	ea	$ 350.00	$ 350	$ 378	$ 435	$ 478	$ 478	
15.32		Rake and repoint crumbling brick-veneer joints.	1	ea	$ 750.00	$ 750	$ 810	$ 932	$ 1,025	$ 1,025	

15.33		Replace 2 sectional overhead doors and gaskets at east side of building. Remove surface rust from steel head and jamb plates/frames. Remove applied rotted wood stops. Replace the bottom 12" of jamb plates. Paint frame.	1	ea	$ 5,700.00	$ 5,700	$ 6,156	$ 7,079	$ 7,787	$ 7,787	
15.34		Replace dock bumper and seals at Loading Dock overhead door on east side.	1	ea	$ 2,500.00	$ 2,500	$ 2,700	$ 3,105	$ 3,416	$ 3,416	
15.35		Replace 4 painted steel doors and frames on east side of building.	1	ea	$ 11,940.00	$ 11,940	$ 12,895	$ 14,829	$ 16,312	$ 16,312	
15.36		Apply silane sealer to hairline cracks in brick veneer. Rake and repoint larger cracks.	1	ea	$ 1,500.00	$ 1,500	$ 1,620	$ 1,863	$ 2,049	$ 2,049	
15.37		Fill 4" hole in damaged CMU block to right of Loading Dock with mortar net and patch hole with mortar to match.	1	ea	$ 125.00	$ 125	$ 135	$ 155	$ 171	$ 171	
15.38		Replace broken glass in window to right of Stair door.	1	ea	$ 180.00	$ 180	$ 194	$ 224	$ 246	$ 246	
15.39		Paint peeling finish on metal panel around louver on northeast corner of Facilities Building.	1	ea	$ 405.00	$ 405	$ 437	$ 503	$ 553	$ 553	
15.40		Patch hole in insulated wall panel on east side of Heating Plant. Seal penetrations and around perimeter of panels. Paint panels.	1	ea	$ 548.00	$ 548	$ 592	$ 681	$ 749	$ 749	
15.42	LIFE SAFETY:	Add intermediate guard rails to meet Code compliance. Paint guard rails to match existing.	1	ea	$ 1,020.00	$ 1,020	$ 1,102	$ 1,267	$ 1,394	$ 1,394	
15.43	ACCESSIBILITY:	Modifications needed at lower floor Men's Room stall and grab bars to meet ADA compliance. Under-sink piping needs guard.	1	ea		$ -	$ -	$ -	$ -	$ -	
15.44		Women's Bathroom on Main Floor can be ADA compliant by adding under-sink pipe guard, adding a 36"-wide grab bar behind the toilet at 34" AFF, adding ADA signage and directional signage in Main Corridor by Service Counter.	1	ea	$ 290.00	$ 290	$ 313	$ 360	$ 396	$ 396	
15.45		Replace knob-style door hardware with ADA-compliant lever-style door hardware.	1	ea	$ 16,250.00	$ 16,250	$ 17,550	$ 20,183	$ 22,201	$ 22,201	
15.46		Adjust/replace service counter at Main Floor Entry Corridor to be Code compliant at no higher than 36".	1	ea	$ 1,200.00	$ 1,200	$ 1,296	$ 1,490	$ 1,639	$ 1,639	

15.47		Adjust/replace Kitchenette counter at Main Floor Lounge to be Code compliant at no higher than 34".	1	ea	$ 3,500.00	$ 3,500	$ 3,780	$ 4,347	$ 4,782	$ 4,782	$ 107,501

	Facilities Assessment - Vermont Technical College		Quantity	Unit	Unit Price	Extension	With 8% GCs	With 15% Cont.	With 10% MU	Item Total	Grand Total
Facility Storage Building											
16.1	EXTERIOR:	Replace deteriorated and damaged wood board siding on west side.	1	ea	$ 960.00	$ 960	$ 1,037	$ 1,192	$ 1,312	$ 1,312	
16.2		Replace/repair wood door frame; paint to match existing.	1	ea	$ 125.00	$ 125	$ 135	$ 155	$ 171	$ 171	
16.3		Replace knob-style lockset with ADA-compliant lever style.	1	ea	$ 650.00	$ 650	$ 702	$ 807	$ 888	$ 888	
16.4		Replace both overhead panel doors.	1	ea	$ 7,000.00	$ 7,000	$ 7,560	$ 8,694	$ 9,563	$ 9,563	$ 11,934

	Facilities Assessment - Vermont Technical College		Quantity	Unit	Unit Price	Extension	With 8% GCs	With 15% Cont.	With 10% MU	Item Total	Grand Total
Generator Building											
17.1	INTERIOR:	Patch and paint damaged or peeling GWB and battens. Match existing.	1	ea	$ 250.00	$ 250	$ 270	$ 311	$ 342	$ 342	
17.2	EXTERIOR:	Add bottom seal/sweep to west doors.	1	ea	$ 85	$ 85	$ 92	$ 106	$ 116	$ 116	
17.3		Install lever-style, ADA-compliant lockset on west door.	1	ea	$ 650	$ 650	$ 702	$ 807	$ 888	$ 888	$ 1,346

	Facilities Assessment - Vermont Technical College		Quantity	Unit	Unit Price	Extension	With 8% GCs	With 15% Cont.	With 10% MU	Item Total	Grand Total
Red School House											
18.1	INTERIOR: First Floor: Entrance Lobby:	Redo ceiling patches for a uniform finish.	1	ea	$ 300.00	$ 300	$ 324	$ 373	$ 410	$ 410	
18.2		Replace corroded astragal at Entrance doors.	1	ea	$ 375.00	$ 375	$ 405	$ 466	$ 512	$ 512	
18.3	Elevator & Alcove:	Fix non-working light fixture.	1	ea	$ 250.00	$ 250	$ 270	$ 311	$ 342	$ 342	
18.4		Door into Alcove is on "hold open" and magnet is making a power-surge noise; correct.	1	ea	$ 350.00	$ 350	$ 378	$ 435	$ 478	$ 478	
18.5	Janitor's Closet:	Replace VCT flooring.	1	ea	$ 180.00	$ 180	$ 194	$ 224	$ 246	$ 246	
18.6	Bathrooms:	Replace VCT flooring within 5 years.	1	ea	$ 1,080.00	$ 1,080	$ 1,166	$ 1,341	$ 1,475	$ 1,475	
18.7		Scrape and paint original wood wainscot, base and window casings. Match existing.	1	ea	$ 70.00	$ 70	$ 76	$ 87	$ 96	$ 96	
18.8		Repair counterweight rope at double-hung window in Men's Room.	1	ea	$ 375.00	$ 375	$ 405	$ 466	$ 512	$ 512	
18.9		Replace worn/damaged film on lower sash in both bathroom windows.	1	ea	$ 125.00	$ 125	$ 135	$ 155	$ 171	$ 171	
18.10		Repair/replace radiation covers in Women's Room.	1	ea	$ 340.00	$ 340	$ 367	$ 422	$ 465	$ 465	
18.11	Classrooms:	Scrape and paint wood base. Match existing.	1	ea	$ 720.00	$ 720	$ 778	$ 894	$ 984	$ 984	
18.12	Second Floor: Large Classroom:	Sand and refinish stained wood window sills; match existing.	1	ea	$ 490.00	$ 490	$ 529	$ 609	$ 669	$ 669	
18.13	Southwest Office:	Replace missing recessed sprinkler head cover.	1	ea	$ 25.00	$ 25	$ 27	$ 31	$ 34	$ 34	
18.14	Basement Stair:	Paint wood treads and risers.	1	ea	$ 175.00	$ 175	$ 189	$ 217	$ 239	$ 239	
18.15	Elevator Vestibule:	Paint wood base, wood casing at Elevator door and inside face of exterior door.	1	ea	$ 250.00	$ 250	$ 270	$ 311	$ 342	$ 342	
18.16	EXTERIOR:	Repair sinkhole in asphalt dripline belt at southwest corner of building.	1	ea	$ 500.00	$ 500	$ 540	$ 621	$ 683	$ 683	
18.17		Repair damaged brick foundation.	1	ea	$ 250.00	$ 250	$ 270	$ 311	$ 342	$ 342	
18.18	ACCESSIBILITY:	Add dedicated ADA-accessible parking spots in paved parking lot, north side.	1	ea	$ 250.00	$ 250	$ 270	$ 311	$ 342	$ 342	
18.19		Replace sidewalk and finish flush with concrete pad at door to Elevator Vestibule.	1	ea	$ 3,000.00	$ 3,000	$ 3,240	$ 3,726	$ 4,099	$ 4,099	$ 12,439

	Facilities Assessment - Vermont Technical College		Quantity	Unit	Unit Price	Extension	With 8% GCs	With 15% Cont.	With 10% MU	Item Total	Grand Total
Allen House											
19.1	INTERIOR: First Floor: Reception:	Refinish original painted wood floor at Reception Desk and clear wood flooring in the Hall within 5 years.	1	ea	$ 1,100.00	$ 1,100	$ 1,188	$ 1,366	$ 1,503	$ 1,503	
19.2	Office 108:	Repaint wood floors.	1	ea	$ 750.00	$ 750	$ 810	$ 932	$ 1,025	$ 1,025	
19.3		Caulk and repaint wood wainscot; several locations. Match existing.	1	ea	$ 125.00	$ 125	$ 135	$ 155	$ 171	$ 171	
19.4	Office 110:	Repaint wood floors within 5 years.	1	ea	$ 750.00	$ 750	$ 810	$ 932	$ 1,025	$ 1,025	
19.5	Stair/Foyer:	Repaint wood floors within 5 years.	1	ea	$ 300.00	$ 300	$ 324	$ 373	$ 410	$ 410	
19.6		Install interior fixed storms at Entry Door.	1	ea	$ 900.00	$ 900	$ 972	$ 1,118	$ 1,230	$ 1,230	
19.7	Lounge:	Repaint wood floors within 5 years.	1	ea	$ 450.00	$ 450	$ 486	$ 559	$ 615	$ 615	
19.8		Investigate large crack in GWB wall north of existing fireplace.	1	ea	$ 175.00	$ 175	$ 189	$ 217	$ 239	$ 239	
19.9		Recommend replacing wood backsplash with plastic laminate to eliminate water damage.	1	ea	$ 1,200.00	$ 1,200	$ 1,296	$ 1,490	$ 1,639	$ 1,639	
19.10	Second Floor:	Painted wood floors should be repainted within 5 years.	1	ea	$ 3,000.00	$ 3,000	$ 3,240	$ 3,726	$ 4,099	$ 4,099	
19.11	Basement:	Investigate appearance of water intrusion at sprinkler entrance.	1	ea	$ -	$ -	$ -	$ -	$ -	$ -	
19.12	Windows:	Recommend install operable interior storm windows as many of non-operable storms have been removed.	1	ea	$ 20,400.00	$ 20,400	$ 22,032	$ 25,337	$ 27,870	$ 27,870	
19.13	EXTERIOR:	Wood clapboard at East Addition should be repainted within 5 years.	1	ea	$ 997.50	$ 998	$ 1,077	$ 1,239	$ 1,363	$ 1,363	
19.14		Repaint base of wood columns at East Porch.	1	ea	$ 150.00	$ 150	$ 162	$ 186	$ 205	$ 205	
19.15		Install missing base trim at one Porch column.	1	ea	$ 125.00	$ 125	$ 135	$ 155	$ 171	$ 171	
19.16		Wood trim and window sills should be repainted within 5 years.	1	ea	$ 3,000.00	$ 3,000	$ 3,240	$ 3,726	$ 4,099	$ 4,099	
19.17		Repaint bulkhead door.	1	ea	$ 75.00	$ 75	$ 81	$ 93	$ 102	$ 102	$ 45,764

	Facilities Assessment - Vermont Technical College		Quantity	Unit	Unit Price	Extension	With 8% GCs	With 15% Cont.	With 10% MU	Item Total	Grand Total
Langevin House											
20.1	INTERIOR: First Floor East Wing: Large Conference Room & Storage Closets:	Replace carpet	1	ea	$ 5,500.00	$ 5,500	$ 5,940	$ 6,831	$ 7,514	$ 7,514	
20.2	Janitor's Closet:	Replace VCT flooring.	1	ea	$ 180.00	$ 180	$ 194	$ 224	$ 246	$ 246	
20.3	East Entry Vestibule:	Investigate for leak above Bathroom Alcove. Once corrected, replace damaged SAC tiles.	1	ea	$ 2,500.00	$ 2,500	$ 2,700	$ 3,105	$ 3,416	$ 3,416	
20.4	Garage:	Install wood window casings and paint.	1	ea	$ 500.00	$ 500	$ 540	$ 621	$ 683	$ 683	
20.5	First Floor, Original House: Front Entry Hall & Stair:	Paint wood treads and risers.	1	ea	$ 325.00	$ 325	$ 351	$ 404	$ 444	$ 444	
20.6	Northwest Lounge:	Repair wood double-hung windows and wood sashes.	1	ea	$ 330.00	$ 330	$ 356	$ 410	$ 451	$ 451	
20.7		Repaint window casings	1	ea	$ 125.00	$ 125	$ 135	$ 155	$ 171	$ 171	
20.9	Southeast Conference Room:	Fill the gap between sprinkler pipe chase and west wall/ceiling with backer rod and sealant, and paint.	1	ea	$ 125.00	$ 125	$ 135	$ 155	$ 171	$ 171	
20.10	Back Stair:	Repaint wood treads and risers.	1	ea	$ 325.00	$ 325	$ 351	$ 404	$ 444	$ 444	
20.11	Second Floor, Original House: Main Hall & Stair:	Repaint floors.	1	ea	$ 1,500.00	$ 1,500	$ 1,620	$ 1,863	$ 2,049	$ 2,049	
20.13	East Conference Room:	Scrape and remove wallpaper at pipe chase in southeast corner and paint.	1	ea	$ 125.00	$ 125	$ 135	$ 155	$ 171	$ 171	
20.14		Investigate for damaged GWB at ceiling near brick chimney.	1	ea	$ 2,500.00	$ 2,500	$ 2,700	$ 3,105	$ 3,416	$ 3,416	
20.15	Closet off East Conference Room:	Scrape and repaint wood panel door to Attic over Connector.	1	ea	$ 110.00	$ 110	$ 119	$ 137	$ 150	$ 150	
20.16		Scrape and remove wallpaper at pipe chase in corner and paint.	1	ea	$ 125.00	$ 125	$ 135	$ 155	$ 171	$ 171	
20.17	EXTERIOR:	Paint misc. exterior, painted wood finish on south side of East Wing within 1-3 years.	1	ea	$ 350.00	$ 350	$ 378	$ 435	$ 478	$ 478	
20.19		Repair/replace wood trim at water table around bay window on south side of Original House; match existing.	1	ea	$ 175.00	$ 175	$ 189	$ 217	$ 239	$ 239	

20.20		Replace rotted tongue-and-groove wood board decking on West Porch; paint entire porch.	1	ea	$ 350.00	$ 350	$ 378	$ 435	$ 478	$ 478	
20.21		Replace buckled tongue-and-groove wood boards on South Porch of Connector.	1	ea	$ 2,000.00	$ 2,000	$ 2,160	$ 2,484	$ 2,732	$ 2,732	
20.22		Repair/replace bowed soffit board on north side of East Wing; paint to match existing.	1	ea	$ 175.00	$ 175	$ 189	$ 217	$ 239	$ 239	
20.23		Install a flush landing with two steps and handrail at door on north side of Connector Entry Vestibule.	1	ea	$ 750.00	$ 750	$ 810	$ 932	$ 1,025	$ 1,025	
20.24	LIFE SAFETY:	Possibly add an additional wall handrail at front stair to bring into Code compliance.	1	ea	$ 650.00	$ 650	$ 702	$ 807	$ 888	$ 888	
20.25		Install additional wall handrail at back stair to bring into Code compliance.	1	ea	$ 650.00	$ 650	$ 702	$ 807	$ 888	$ 888	$ 26,463

	Facilities Assessment - Vermont Technical College		Quantity	Unit	Unit Price	Extension	With 8% GCs	With 15% Cont.	With 10% MU	Item Total	Grand Total
Biodigester											
21.1	EXTERIOR:	Replace missing sections of pre-finished metal eave trim.	1	ea	$ 450	$ 450	$ 486	$ 559	$ 615	$ 615	$ 615

	Facilities Assessment - Vermont Technical College		Quantity	Unit	Unit Price	Extension	With 8% GCs	With 15% Cont.	With 10% MU	Item Total	Grand Total
Farmstead - Main Barn											
22.1	INTERIOR: North Wing: General:	Replace interior, painted-steel doors and frames that are in poor condition.	1	ls	$14,290.00	$ 14,290	$ 15,433	$ 17,748	$ 19,523	$ 19,523	
22.2	Milk Holding Tank Room:	Clean and pressure wash concrete floor and curb to remove mold growth.	1	ea	$ 350.00	$ 350	$ 378	$ 435	$ 478	$ 478	
22.5	Veterinary Rooms:	Replace FRP wall panels that are deteriorated or damaged; in kind.	1	ea	$ 3,080.00	$ 3,080	$ 3,326	$ 3,825	$ 4,208	$ 4,208	
22.6	Locker Room:	Replace sagging SAC ceiling tiles.	1	ea	$ 400.00	$ 400	$ 432	$ 497	$ 546	$ 546	
22.7	Single Use Unisex ADA Bathroom:	Replace water-stained SAC ceiling tiles.	1	ea	$ 140.00	$ 140	$ 151	$ 174	$ 191	$ 191	
22.8	Classroom:	Adjust/replace counters, sink and stove height for ADA compliance.	1	ea	$ 5,350.00	$ 5,350	$ 5,778	$ 6,645	$ 7,309	$ 7,309	
22.9		Possibly upgrade built-in computer counters.	1	ea	$ 4,650.00	$ 4,650	$ 5,022	$ 5,775	$ 6,353	$ 6,353	
22.10	EXTERIOR:	Replace pre-finished metal siding and trim as needed; in kind.	1	ea	$ 4,500.00	$ 4,500	$ 4,860	$ 5,589	$ 6,148	$ 6,148	
22.12		Cut off bottom 1" of wood posts at Main Entrance, west side of North Wing, install galvanized post bases; paint the columns.	1	ea	$ 1,160.00	$ 1,160	$ 1,253	$ 1,441	$ 1,585	$ 1,585	
22.13		Prime and paint Wood Shed on west end; match existing.	1	ea	$ 350.00	$ 350	$ 378	$ 435	$ 478	$ 478	
22.14	Windows:	Replace steel window on east end of Barn and exterior wood sill and trim; paint.	1	ea	$ 1,535.00	$ 1,535	$ 1,658	$ 1,906	$ 2,097	$ 2,097	
22.15		Reglaze aluminum storm sliding windows at North Wing.	1	ea	$ 1,080.00	$ 1,080	$ 1,166	$ 1,341	$ 1,475	$ 1,475	
22.16		Repair/replace exterior wood window trim/sills and paint.	1	ea	$ 2,205.00	$ 2,205	$ 2,381	$ 2,739	$ 3,012	$ 3,012	
22.17	Exterior Doors & Overhead Doors:	Replace steel door and frame at west end of Barn.	1	ea	$ 2,195.00	$ 2,195	$ 2,371	$ 2,726	$ 2,999	$ 2,999	
22.18		Replace wood frame and wood trim; paint. Replace weather seals.	1	ea	$ 350.00	$ 350	$ 378	$ 435	$ 478	$ 478	
22.19		Replace wood frame and wood trim; paint. Replace weather seals.	1	ea	$ 350.00	$ 350	$ 378	$ 435	$ 478	$ 478	
22.20		Replace rusted pair of steel doors and frame at west side of North Wing.	1	ea	$ 2,605.00	$ 2,605	$ 2,813	$ 3,235	$ 3,559	$ 3,559	
22.22		Remove rust from bottom of frame and sidelight on east side of Main Entrance to North Wing; paint entire door and frame. Replace door threshold and weather seals.	1	ea	$ 2,595.00	$ 2,595	$ 2,803	$ 3,223	$ 3,545	$ 3,545	

22.23	ACCESSIBILITY:	Replace asphalt sidewalk and make ADA accessible.	1	ea	$ 1,440.00	$ 1,440	$ 1,555	$ 1,788	$ 1,967	$ 1,967	
22.24		Adjust parking lot to include dedicated ADA-accessible spot(s) with signage.	1	ea	$ 125.00	$ 125	$ 135	$ 155	$ 171	$ 171	
22.27		Replace knob-style door hardware with ADA-compliant lever-style hardware.	15	ea	$ 650.00	$ 9,750	$ 10,530	$ 12,110	$ 13,320	$ 13,320	$ 79,923

	Facilities Assessment - Vermont Technical College		Quantity	Unit	Unit Price	Extension	With 8% GCs	With 15% Cont.	With 10% MU	Item Total	Grand Total
Farmstead - Heifer Barn											
23.1	EXTERIOR:	Replace any deteriorated boards.	1	ea	$ 650.00	$ 650	$ 702	$ 807	$ 888	$ 888	
23.2		Paint siding on west side that has begun to peel.	1	ea	$ 250.00	$ 250	$ 270	$ 311	$ 342	$ 342	
23.3		Paint wood trim on east and west sides.	1	ea	$ 250.00	$ 250	$ 270	$ 311	$ 342	$ 342	$ 1,571

	Facilities Assessment - Vermont Technical College		Quantity	Unit	Unit Price	Extension	With 8% GCs	With 15% Cont.	With 10% MU	Item Total	Grand Total
Farmstead - Equine Vet Tech											
24.1	EXTERIOR:	Repair battens on the west side.	1	ea	$ 450.00	$ 450	$ 486	$ 559	$ 615	$ 615	
24.2		Replace glass and screen at damaged window on north wall.	1	ea	$ 180.00	$ 180	$ 194	$ 224	$ 246	$ 246	
24.3		Paint all window and door casings, eaves and rake trim.	1	ea	$ 750.00	$ 750	$ 810	$ 932	$ 1,025	$ 1,025	
24.4		Repair, scrape and paint wood trim and siding at gable dormer above South Entry doors.	1	ea	$ 150.00	$ 150	$ 162	$ 186	$ 205	$ 205	
24.5		Install weather seals at door on south wall.	1	ea	$ 125.00	$ 125	$ 135	$ 155	$ 171	$ 171	
24.6		Repair and adjust sliding wood barn doors on west wall for proper operation.	1	ea	$ 200.00	$ 200	$ 216	$ 248	$ 273	$ 273	$ 2,534

	Facilities Assessment - Vermont Technical College		Quantity	Unit	Unit Price	Extension	With 8% GCs	With 15% Cont.	With 10% MU	Item Total	Grand Total
Farmstead - Small Animal Barn											
25.1	EXTERIOR:	Replace fabric on walls below barrel vault roof with a more-durable material.	1	ea	$ 5,400.00	$ 5,400	$ 5,832	$ 6,707	$ 7,377	$ 7,377	
25.2		Replace all wood trim and plywood sheathing at the south end, prime and paint.	1	ea	$ 250.00	$ 250	$ 270	$ 311	$ 342	$ 342	
25.3		Repair/replace dented overhead doors at south end.	1	ea	$ 4,000.00	$ 4,000	$ 4,320	$ 4,968	$ 5,465	$ 5,465	
25.5		Prime and paint exterior wood door at south end.	1	ea	$ 115.00	$ 115	$ 124	$ 143	$ 157	$ 157	$ 13,341

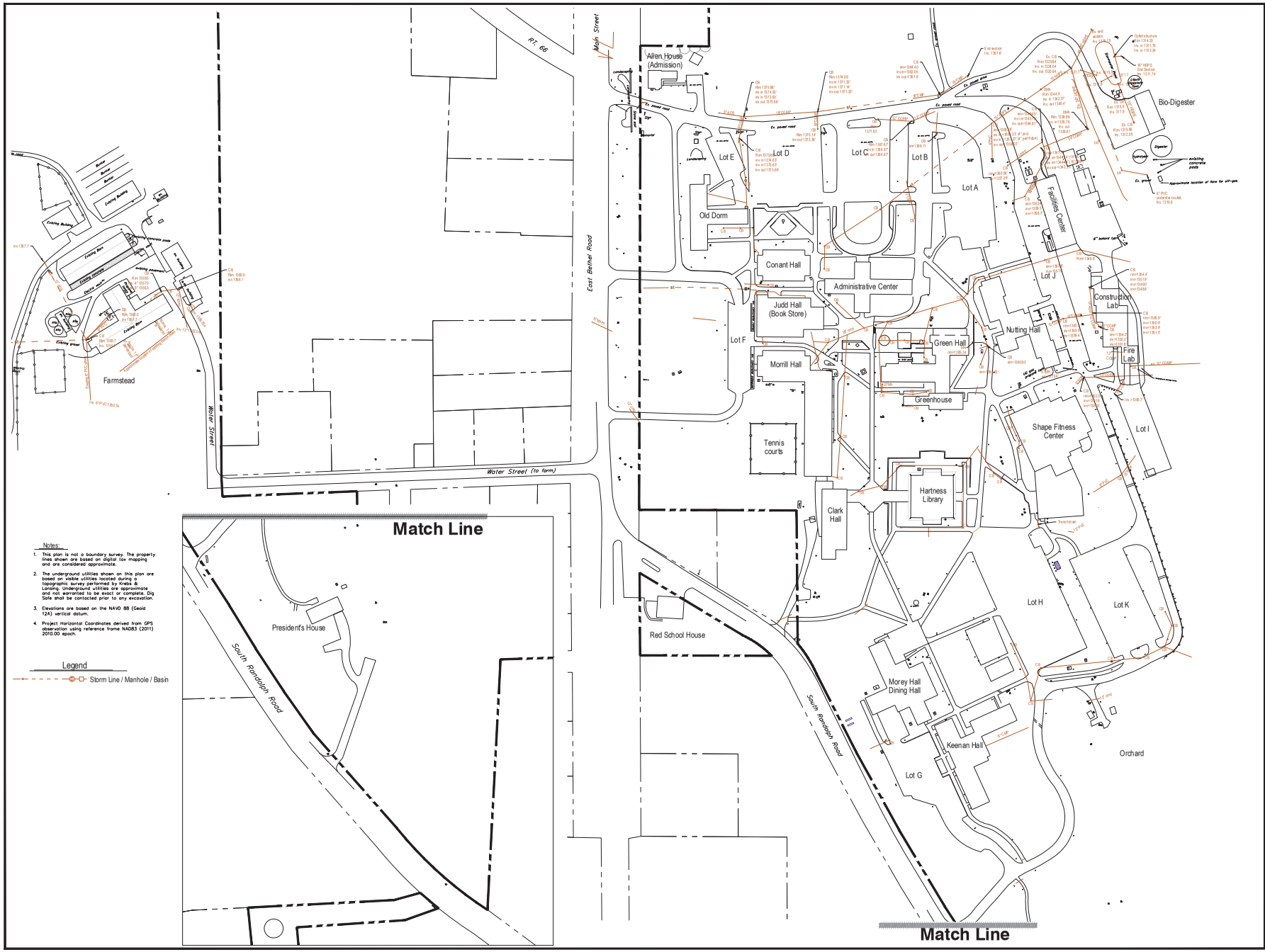
	Facilities Assessment - Vermont Technical College		Quantity	Unit	Unit Price	Extension	With 8% GCs	With 15% Cont.	With 10% MU	Item Total	Grand Total
Farmstead - Hay Barn											
26.1	EXTERIOR:	Reattach boards on the west and south sides that have pulled away from framing.	1	ea	$ 250	$ 250	$ 270	$ 311	$ 342	$ 342	
26.2		Paint wood trim on north and west sides.	1	ea	$ 250	$ 250	$ 270	$ 311	$ 342	$ 342	
26.3		Replace damaged trim at two overhead coiling doors on north end and repair remainder as required, and paint.	1	ea	$ 350	$ 350	$ 378	$ 435	$ 478	$ 478	
26.4		Repair framing. Replace damaged trim and repair remainder as required, and paint.	1	ea	$ 1,500	$ 1,500	$ 1,620	$ 1,863	$ 2,049	$ 2,049	$ 3,211

	Facilities Assessment - Vermont Technical College		Quantity	Unit	Unit Price	Extension	With 8% GCs	With 15% Cont.	With 10% MU	Item Total	Grand Total
Farmstead - Sugar House											
27.1	EXTERIOR:	Paint exterior vertical wood board-and-batten siding on east side.	1	ea	$ 175.00	$ 175	$ 189	$ 217	$ 239	$ 239	
27.2		Paint wood trim on east side.	1	ea	$ 125.00	$ 125	$ 135	$ 155	$ 171	$ 171	$ 410

	Facilities Assessment - Vermont Technical College		Quantity	Unit	Unit Price	Extension	With 8% GCs	With 15% Cont.	With 10% MU	Item Total	Grand Total
Farmstead - Silos & Shed											
28.1	EXTERIOR:	Replace exterior vertical wood board-and-batten siding and wood trim at Shed.	1	ea	$ 7,560.00	$ 7,560	$ 8,165	$ 9,390	$ 10,328	$ 10,328	
28.2		Replace Shed windows.	1	ea	$ 5,400.00	$ 5,400	$ 5,832	$ 6,707	$ 7,377	$ 7,377	
28.3		Replace corrugated metal roof at Shed.	1	ea	$ 3,600.00	$ 3,600	$ 3,888	$ 4,471	$ 4,918	$ 4,918	$ 22,624

	Facilities Assessment - Vermont Technical College		Quantity	Unit	Unit Price	Extension	With 8% GCs	With 15% Cont.	With 10% MU	Item Total	Grand Total
Farmstead - Equipment Shed											
29.1	EXTERIOR:	Paint wood trim within 2 years.	1	ea	$ 750.00	$ 750	$ 810	$ 932	$ 1,025	$ 1,025	$ 1,025

SITE / CIVIL



Notes:

1. This plan is not a boundary survey. The property lines shown are based on digital tax mapping and are considered approximate.
2. The underground utilities shown on this plan are based on visible utilities located during a topographic survey performed by Krebs & Lansing. Underground utilities are approximate and not warranted to be exact or complete. Dig Safe shall be contacted prior to any excavation.
3. Elevations are based on the NAVD 88 (Geoid 12A) vertical datum.
4. Project Horizontal Coordinates derived from GPS observation using reference frame NAD83 (2011) 2010.00 epoch.

Legend

Storm Line / Manhole / Basin

Consultants:

Civil Engineer

Krebs & Lansing Consulting Engineers, Inc.
164 Main Street, Suite 201
Colchester, VT 05446
T: (802) 878-0375
F: (802) 878-9618
email@krebsandlansing.com

Project:

VTC Campus

Project No. 18154
Scale 1" = 100'
Drawn by TJB
Checked by
Date September 6, 2018

0' 100' 200' 300'

Bar Scale 1" = 100'

Revisions

No.	Date	

Drawing Title

Utility Master Plan Storm Water

Drawing No.

1

Consultants:

Civil Engineer

Krebs & Lansing Consulting Engineers, Inc.
164 Main Street, Suite 201
Colchester, VT 05446
T: (802) 878-0375
F: (802) 878-9618
email@krebsandlansing.com

Project:
VTC Campus

Project No. 18154
Scale 1" = 100'
Drawn by TJB
Checked by
Date September 6, 2018

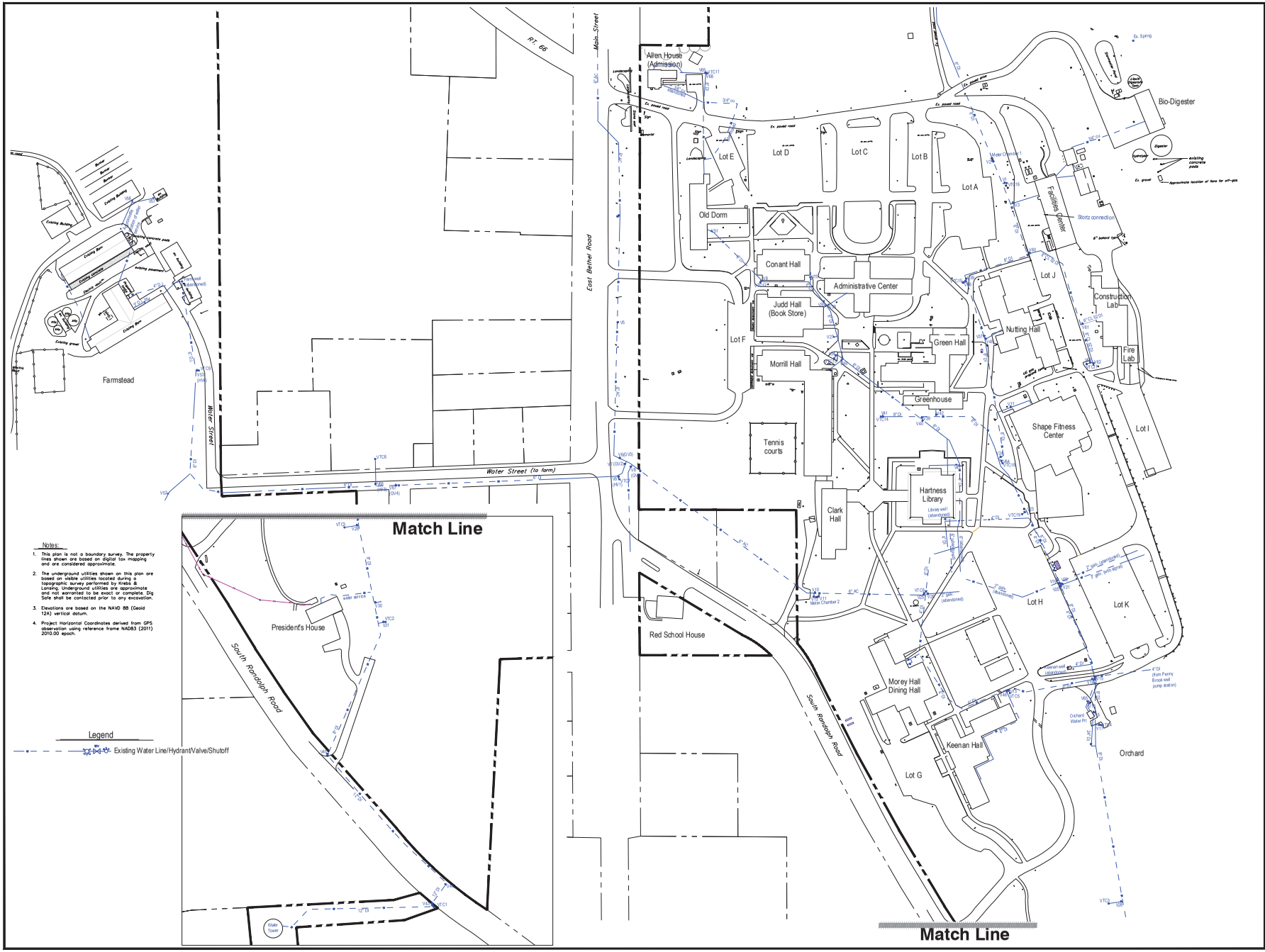
0' 100' 200' 300'
Bar Scale 1" = 100'

Revisions
No. Date

Drawing Title
Utility Master Plan Sanitary Sewer

Drawing No.
2

\\LACIE1\Public\2018\18154 VTC Facilities Assessment\DWG\VTC Master Dr.dwg



Notes:

1. This plan is not a boundary survey. The property lines shown are based on digital tax mapping and are considered approximate.
2. The underground utilities shown on this plan are based on visible utilities located during a topographic survey performed by Krebs & Lansing. Underground utilities are approximate and not warranted to be exact or complete. Dig Safe shall be contacted prior to any excavation.
3. Elevations are based on the NAVD 88 (Geoid 12A) vertical datum.
4. Project Horizontal Coordinates derived from GPS observation using reference frame NAD83 (2011) 2010.00 epoch.

Legend

Existing Water Line/Hydrant/Valve/Shutoff

Consultants:

Civil Engineer

Krebs & Lansing Consulting Engineers, Inc.
164 Main Street, Suite 201
Colchester, VT 05446
T: (802) 878-0375
F: (802) 878-9618
email@krebsandlansing.com

Project:

VTC Campus

Project No. 18154
Scale 1" = 100'
Drawn by TJB
Checked by
Date September 6, 2018

0' 100' 200' 300'

Bar Scale 1" = 100'

Revisions

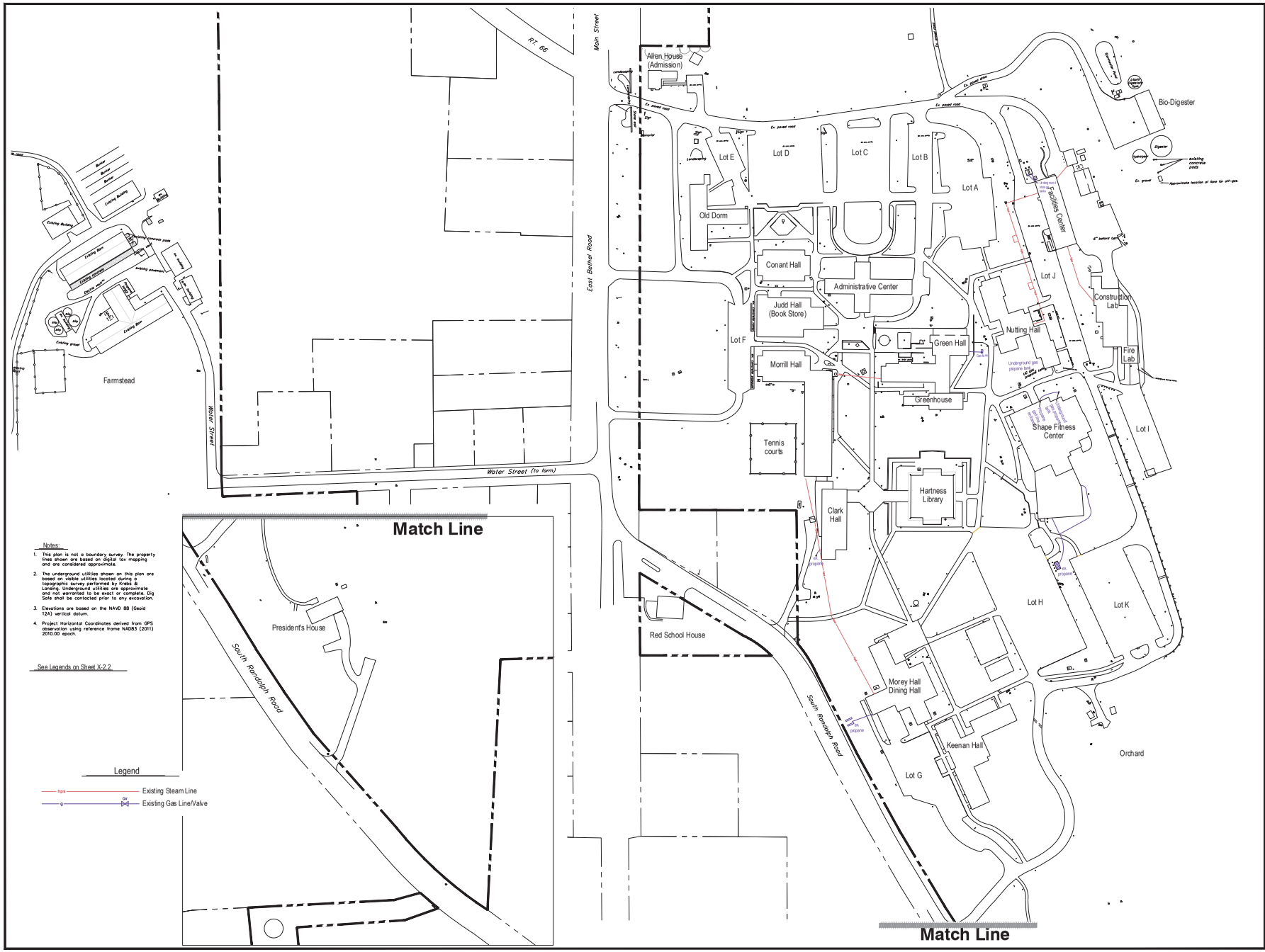
No.	Date	

Drawing Title

Utility Master Plan Water

Drawing No.

3



Notes:

1. This plan is not a boundary survey. The property lines shown are based on digital tax mapping and are considered approximate.
2. The underground utilities shown on this plan are based on visible utilities located during a topographic survey performed by Krebs & Lansing. Underground utilities are approximate and not warranted to be exact or complete. Dig Safe shall be contacted prior to any excavation.
3. Elevations are based on the NAVD 88 (Geoid 12A) vertical datum.
4. Project Horizontal Coordinates derived from GPS observation using reference frame NAD83 (2011) 2010.00 epoch.

See Legends on Sheet X-2.2

Legend

- Existing Steam Line
- Existing Gas Line/Valve

Consultants:

Civil Engineer

Krebs & Lansing Consulting Engineers, Inc.
164 Main Street, Suite 201
Colchester, VT 05446
T: (802) 878-0375
F: (802) 878-9618
email@krebsandlansing.com

Project:

VTC Campus

Project No. 18154
Scale 1" = 100'
Drawn by TJB
Checked by
Date September 6, 2018

0' 100' 200' 300'
Bar Scale 1" = 100'

Revisions

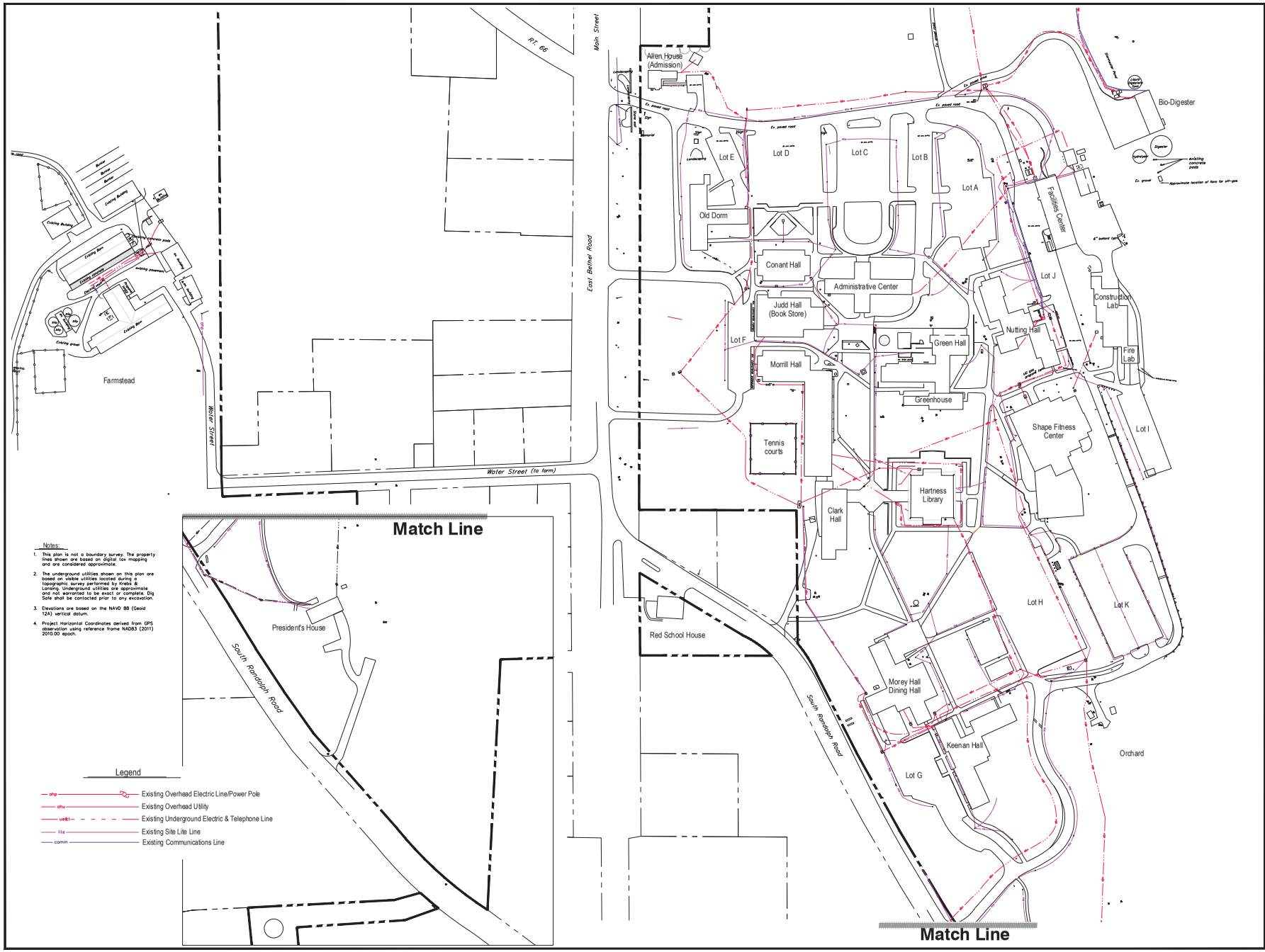
No.	Date	

Drawing Title

Utility Master Plan Steam and Gas

Drawing No.

4



Consultants:

Civil Engineer

Krebs & Lansing Consulting Engineers, Inc.
164 Main Street, Suite 201
Colchester, VT 05446
T: (802) 878-0375
F: (802) 878-9618
email@krebsandlansing.com

Project:

VTC Campus

Project No. 18154
Scale 1" = 100'
Drawn by TJB
Checked by
Date September 5, 2018

0' 100' 200' 300'
Bar Scale 1" = 100'

Revisions

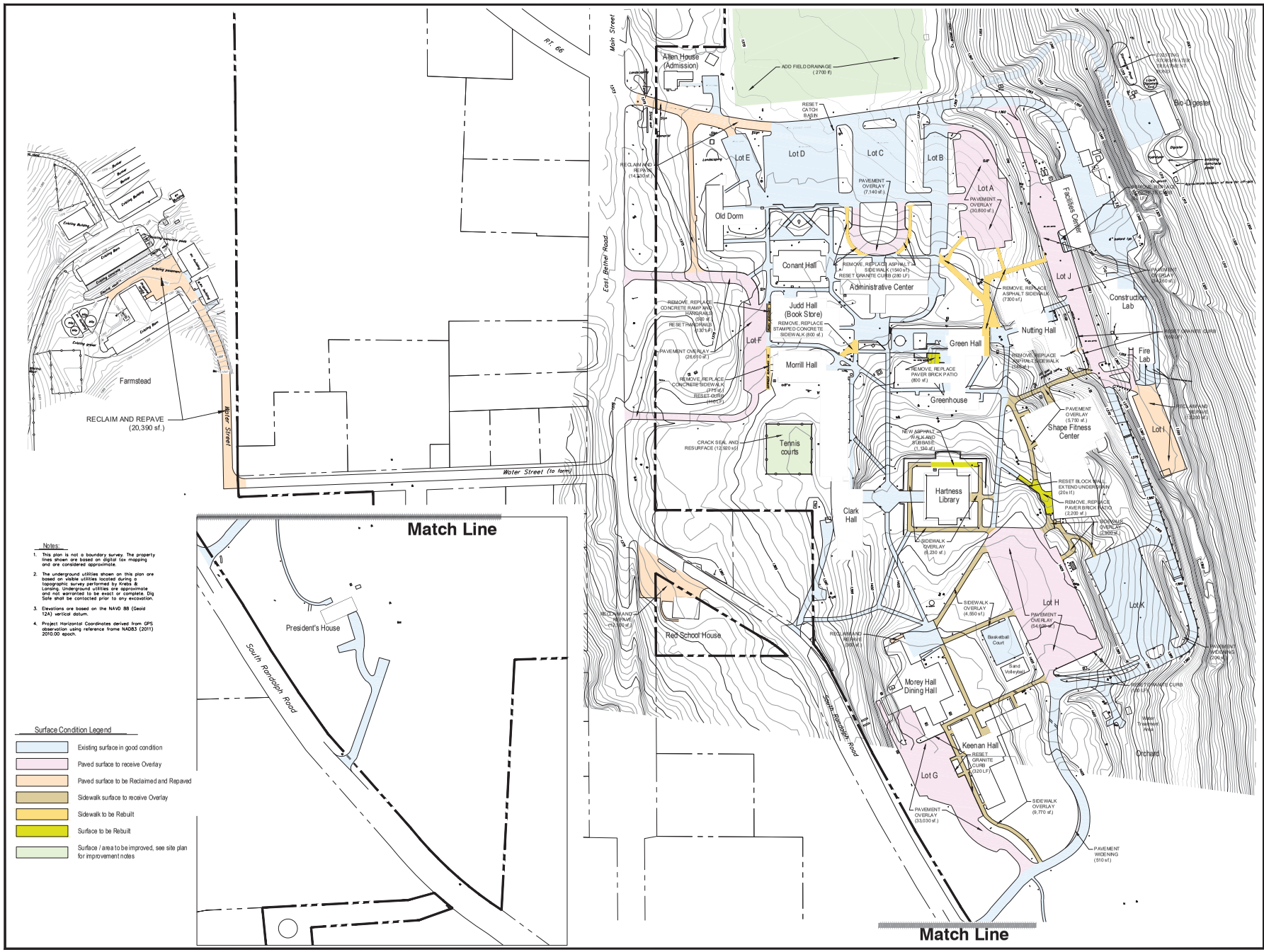
No.	Date	

Drawing Title

Utility Master Plan Electrical and Communications

Drawing No.

5



Notes:

1. This plan is not a boundary survey. The property lines shown are based on digital tax mapping and are considered approximate.
2. The underground utilities shown on this plan are based on visible utilities located during a topographic survey performed by Krebs & Lansing. Underground utilities are approximate and not warranted to be exact or complete. Dig Safe shall be contacted prior to any excavation.
3. Elevations are based on the NAVD 88 (Geoid 12A) vertical datum.
4. Project Horizontal Coordinates derived from GPS observation using reference frame NAD83 (2011) 2010.00 epoch.

Surface Condition Legend

- Existing surface in good condition
- Paved surface to receive Overlay
- Paved surface to be Reclaimed and Repaved
- Sidewalk surface to receive Overlay
- Sidewalk to be Rebuilt
- Surface to be Rebuilt
- Surface / area to be improved, see site plan for improvement notes

Consultants:

Civil Engineer

Krebs & Lansing Consulting Engineers, Inc.
164 Main Street, Suite 201
Colchester, VT 05446
T: (802) 878-0375
F: (802) 878-9618
email@krebsandlansing.com

Project:
VTC Campus

Project No. 18154
Scale 1" = 100'
Drawn by TJB
Checked by SWH
Date September 6, 2018

0' 100' 200' 300'
Bar Scale 1" = 100'

Revisions
No. Date

Drawing Title
Utility Master Plan Surface Conditions

Drawing No.
6

PROBABLE COST OPINION

KREBS & LANSING
Consulting Engineers, Inc.

164 Main Street, Suite 201
Colchester, VT 05446
Telephone (802) 878-0375, Fax 878-9618
email@krebsandlansing.com

Vermont Technical College
Planning Budget for Civil/Site Related Deferred Maintenance

Prepared by: Michael J. Burke, P.E.
Krebs and Lansing Consulting Engineers, Inc.
August 20, 2018

Krebs & Lansing Consulting Engineers performed GPS location surveys and site visits to identify civil/site elements of the VTC Campus that have experienced deferred maintenance.

We have prepared sheets 1-6 to identify the locations of campus civil/site elements which in our opinion have experienced deferred maintenance.

The following is a brief description of the individual civil/site elements and a cost opinion to mitigate deferred maintenance.

Campus Roads, Parking Lots and Sidewalks

Most of the roads and parking lots on campus are serviceable, but there are areas where sidewalks need to be replaced, curbs need to be reset and pavements need to be reclaimed or pavements need to be overlaid to mitigate the effects of deferred maintenance. Table 1 offers a budget to mitigate deferred maintenance associated with roads, parking lots and sidewalks. Sheet 6 identifies the locations of the areas referenced in table 1.

Table 1

Campus Roads. Parking & Sidewalks Maintenance, Repairs or Improvements				
Description	**Estimated Quantity**	**Location(s)**	**Cost Opinion for Deferred Maintenance**	
Access drive and main roadway west and north of Old Dorm should be reclaimed and 3-inch overlay applied	14,230 SF	Old Dorm (see sheet 6, tan shade)	14,230 SF @ $3.00/SF	$ 42,690.00
Lot J and misc. access drives should be crack sealed and overlaid with 1½-inch of asphalt	34,260 SF	Lot J & Fire Lab (see sheet 6, pink shade)	34,260 SF @ $1.55/SF	$ 53,103.00
Facilities Center entrance remove and replace concrete curbing	80 LF	Facilities Center (see sheet X-2.0)	80 LF @ $30/LF	$ 2,400.00
Lot A and misc. access drives should be crack sealed and overlaid with 1½-inch of asphalt.	30,800 SF	Lot A (see sheet 6, pink shade)	30,800 SF @ $1.55/SF	$ 47,740.00

(Continued on page 2)

Campus Roads. Parking & Sidewalks Maintenance, Repairs or Improvements				
Description	**Estimated Quantity**	**Location(s)**	**Cost Opinion for Deferred Maintenance**	
Administrative Center drop of loop and parking should be crack sealed and overlaid with 1½-inch of asphalt	7,140 SF	Administrative Center (see sheet 6, pink shade)	7,140 SF @ $1.55/SF	$ 11,067.00
Administrative Center drop of loop sidewalk should be removed and repaved.	1540 SF	Administrative Center (see sheet 6, yellow shade)	1540 SF @ $7.50/SF	$ 11,550.00
Administrative Center drop of loop granite curbing should be reset.	440 LF	Administrative Center (see sheet 6)	440 LF @ $20.00/LF	$ 8,800.00
Stamped concrete sidewalk by NE corner of Morrill	800 SF	Morrill Hall (see sheet 6, yellow shade)	800 SF @ $7.50/SF	$ 6,000.00
Sidewalks north and west of Nutting Hall should be removed and replaced.	7300 SF	Nutting Hall (see sheet 6, yellow shade)	7300 SF @ $7.50/SF	$ 54,750.00
Paver brick patio north side of Green Hall should be removed and replaced.	800 SF	Green Hall (see sheet 6, yellow shade)	800 SF @ $12.00/SF	$ 9,600.00
Sidewalk on east side of Nutting Hall should be removed and replaced.	140 SF	Green Hall (see sheet X-2.0, yellow shade)	140 SF @ $7.50/SF	$ 1,050.00
Lot I should be reclaimed and 3-inch overlay applied	13,200 SF	Green Hall (see sheet 6, yellow shade)	13,200 SF @ $3.00/SF	$ 39,600.00
Sidewalks north and west of Shape should be crack sealed and overlaid with 1½-inch of asphalt	5750 SF	Shape (see sheet 6, tan shade)	5750 SF @ $1.55/SF	$ 8,915.00
New sidewalk and subbase should be installed north of Library	1,130 SF	Library (see sheet 6, yellow shade)	1130 SF @ $7.50/SF	$ 8,475.00
Lot F and access drives should be crack sealed and overlaid with 1½-inch of asphalt.	26,610 SF	Lot F (see sheet 6, pink shade)	26,610 SF @ $1.55/SF	$ 41,250.00
Concrete sidewalk west side of Morrill Hall should be removed and replaced	755 SF	Morrill Hall (see sheet 6, yellow shade)	775 SF @ $7.50/SF	$ 5,812.00
Concrete curb west side of Morrill Hall should be removed and replaced	110 LF	Morrill Hall (see sheet 6)	110 LF @ $30.00/LF	$ 3,300.00

(Continued on page 3)

Campus Roads. Parking & Sidewalks Maintenance, Repairs or Improvements				
Description	**Estimated Quantity**	**Location(s)**	**Cost Opinion for Deferred Maintenance**	
Concrete entrance ramp west side of Judd Hall should be removed and replaced	500 SF	Judd Hall (see sheet 6, yellow shade)	500 SF @ $20.00/SF	$ 10,000.00
Entire parking lot Red School House should be reclaimed and 3-inch overlay applied	12,100 SF	Red School House (see sheet 6, tan shade)	12,100 SF @ $3.00/SF	$ 36,300.00
Sidewalks around Hartness Library should be crack sealed and overlaid with 1½-inch of asphalt.	6,230 SF	Hartness Library (see sheet 6, brown shade)	6,230 SF @ $1.55/SF	$ 9,660.00
Paver brick sidewalk on west side of Shape should be removed and replaced.	2,200 SF	Shape Fitness Center (see sheet 6, yellow shade)	2200 SF @ $12.00/SF	$ 26,400.00
Concrete block retaining wall on west side of Shape should be reset and underdrain extended to CB	20 LF	Shape Fitness Center (see sheet 6)	20 LF @ $350/LF	$ 7,000.00
Sidewalks by southwest corner of Shape should be crack sealed and overlaid with 1½-inch of asphalt.	2,900 SF	Shape Fitness Center (see sheet 6, brown shade)	2,900 SF @ $1.55/SF	$ 4,495.00
Sidewalks from Lot H to Morey should be crack sealed and overlaid with 1½-inch of asphalt.	4,550 SF	Westerly of Lot H (see sheet 6, brown shade)	4,550 SF @ $1.55/SF	$ 7,055.00
Asphalt driveway on North end of Morey should be reclaimed and 3-inch overlay applied	300 SF	North of Morey Hall (see sheet 6, brown shade)	300 SF @ $3.00/SF	$ 900.00
Lot H and access drives should be crack sealed and overlaid with 1½-inch of asphalt.	54,600 SF	Lot H (see sheet 6, pink shade)	54,600 SF @ $1.55/SF	$ 84,630.00
Lot H south side granite curbing should be reset.	130	Lot H (southerly side)	130 LF @ $20/LF	$ 2,600.00
Access Drive widening by southeast corner of Lot K	200 SF	Lot K (see sheet 6, grey shade)	200 SF @ $10/SF	$ 2,000.00

(Continued on page 4)

Campus Roads. Parking & Sidewalks Maintenance, Repairs or Improvements				
Description	**Estimated Quantity**	**Location(s)**	**Cost Opinion for Deferred Maintenance**	
Access Drive widening by southeast corner of Keenan Hall	510 SF	Lot K (see sheet 6, grey shade)	510 SF @ $10/SF	$ 5,100.00
Lot G should be reclaimed and 3-inch overlay applied	33,030 SF	Lot G (see sheet 6, pink shade)	33,030 SF @ $3.00/SF	$ 99,090.00
Lot G miscellaneous granite curbing should be reset.	320	Lot G (westerly and northerly sides)	320 LF @ $20/LF	$ 6,400.00
Farmstead access drive and parking should be reclaimed and 3-inch overlay applied	20,390 SF	Farmstead (see sheet 6, tan shade)	20,390 SF @ $3.00/SF	$ 61,170.00
Campus Roads, Parking & Sidewalks Subtotal:				**$718,902.00**

Campus Sanitary Sewer System

There are approximately 5,000 LF of sanitary sewer lines on campus. Sewer lines range in size from four inch dia to eight inch dia. The collection lines appear to function adequately with gravity flow in a northerly direction to the Randolph sewer treatment facility. We understand approximately 500 feet of sewer line from Morey Hall North is jetted every year, and there are several manhole covers that should be rebricked. Given the age of the system components, we recommend jetting and a camera inspection of the campus sanitary sewer lines to inventory condition of existing lines. Table 2 proposes a deferred maintenance budget for the campus sanitary sewer system. Refer to sheet 2.

Table 2

Campus Sanitary Sewer System Maintenance, Repairs or Improvements				
Description	**Estimated Quantity**	**Location(s)**	**Cost Opinion for Deferred Maintenance**	
Sewer manhole bricks deteriorated under manhole covers. Brick needs to be replaced and covers need to be reset.	5 each	Campus wide	5 @ $500/ea	$ 2,500.00
Jetting & camera inspection campus wide sewer lines	5,000 LF	Campus wide	$4.00/LF	$ 20,000.00
Campus Sanitary Sewer System Subtotal:				**$ 22,500.00**

Campus Water Lines

VTC has shared ownership and operation of a public system. The campus water distribution system is primarily ductile iron with the system's hydraulic base maintained by an elevated water tank owned by VTC. While the existing water system and appurtenances appear to function adequately, the scope of our investigation did not include an assessment of pipe conditions under the ground. Given that parts of this water system are 50 years old, ongoing maintenance will be necessary to keep the system operating in conformance with the requirements of a public water system. Table 3 proposes the following deferred maintenance budget for the water system.

Table 3

Campus Water Lines Maintenance, Repairs or Improvements				
Description	**Estimated Quantity**	**Location(s)**	**Opinion of Deferred Maintenance**	
Replace hydrant	2 ea	Campus	2 @ $5000/ea	$ 10,000.00
Repair leaking valves	2 ea	Campus	2 @ $1000/ea	$ 2,000.00
Clean and inspect water tank	1 ea	Water tower	Estimate	$ 20,000.00
			Campus Water Lines Subtotal:	**$ 32,000.00**

Campus Stormwater System

The core area of the VTC Campus is 125 acres. Ground slopes range from 1% to 10%. The majority of soils on campus are poorly drained Cabot silt loam.

Most of the stormwater collection systems on campus are permitted by the Vermont Department of Environmental Protection general permits 9010 and 9015. Annual reports for these systems indicate they are being operated and maintained in conformance with the stormwater general permits.

Observations from our recent site visits indicate the stormwater collection systems are being operated in general conformance with structural best management practices. We recommend cleaning catch basin sumps and resetting catch basin frames that are loose or have settled. Campus maintenance personnel reported several corrugated metal drainage pipes were replaced because the pipe inverts have rusted out. Given the age of the stormwater collection system, we recommend a camera inspection of existing drainage pipes on campus.

Table 4 proposes the following deferred maintenance budget for the campus stormwater system.

Table 4

Campus Stormwater System Maintenance, Repairs or Improvements				
Description	**Estimated Quantity**	**Location(s)**	**Cost Opinion for Deferred Maintenance**	
Catch basin bricks deteriorated under frames and grates. Bricks need to be replaced, grate and frame need to be reset.	20 each	Harvey, Stevens, Library & Rita Bole Complex	20 @ $450/ea	$ 9,000.00
Catch basin sumps need to be cleaned and lines flushed.	100 each	Campus Wide	100 @ $100/ea	$ 10,000.00
Old Dorm basement has flooding issues along the north side. Footing drains, foundation waterproofing and addition stormwater piping and structures maybe requires	1 each	Old Dorm	Projection	$ 10,000.00
Camera inspection	9,000 LF	$2.00/LLF	9,000 LF @ $2	$ 18,000.00
			Campus Stormwater System Subtotal:	**$ 42,950.00**

Campus Athletic Field

Existing tennis courts on campus have pavement cracks, but the playing surface is still serviceable. Cracks on the courts need to be filled, the entire surface sealed and lines repainted. At the existing athletic fields, underdrains should be installed to enhance field drainage. Table 5 proposes a deferred maintenance budget to rehabilitate the tennis courts and athletic fields.

Table 5

Campus Athletic Field & Tennis Court Repairs or Improvements				
Description	**Estimated Quantity**	**Location(s)**	**Cost Opinion for Deferred Maintenance**	
Crack fill, seal and repaint tennis courts	2 courts	West of Morrill Hall (see sheet 6, light green shade)	$12,000/court	$ 24,000.00
Install Athletic Field underdrain	1600 LF	Athletic Fields	$22/LF	$ 35,200.00
			Campus Athletic Field & Tennis Court Subtotal:	**$ 59,200.00**

Vermont Technical College
Planning Budget for Site Deferred Maintenance Summary

Description	Cost Opinion for Deferred Maintenance
Roads, Parking & Sidewalks	$ 718,902.00
Sanitary Sewer System	$ 22,500.00
Water Lines System	$ 32,000.00
Stormwater System	$ 42,950.00
Athletic Field & Tennis Courts	$ 59,200.00
Total Planning Budget for Deferred Maintenance:	**$ 897,802.00**

Comments/Recommendations

A. We recommend the following priorities in budgeting for deferred maintenance costs:
   1) Recommended water, sewer and stormwater infrastructure repairs and maintenance.
   2) Maintenance overlays of parking lots, sidewalks and circulation drives in serviceable condition.
   3) Tennis court and athletic field improvements.
   4) Reclaim and overlay of deteriorated pavements
   5) Reconstruction of roads and parking lots with failed pavement.

B. The Planning Budget for Deferred Maintenance is based on scaled plans and walk through evaluations and is intended only for planning purposes. Additional professional evaluations and plan development will be necessary before finalizing cost for site maintenance, repairs or improvements.

VERMONT TECH FACILITIES CONDITIONS ASSESSMENT

MEP & FIRE PROTECTION

69 Union St. Winooski, VT 05404 ■ (802) 655-1753 ■ Fax (802) 655-7628 ■ lnconsulting.com

August 20, 2018

Sherry Libby
Marty Sienkiewycz
SAS Architects
117 St. Paul Street, Third Floor
Burlington, VT 05401

RE: Vermont Technical College Randolph: Existing Building Mechanical, Electrical, and Plumbing Infrastructure Report

L.N. Consulting was retained by SAS Architects to review the existing mechanical, electrical and fire protection infrastructure supporting the Vermont Technical College Campus Buildings and to develop a report describing observations including the condition and age of the existing MEP (Mechanical, Electrical, and Plumbing) infrastructure. The goal of the campus building infrastructure report is to provide the master planning team with reliable information to assist in developing an appropriate Campus Master Plan. The MEP systems infrastructure review includes the following buildings:

1. ***Administrative Center***
2. ***Old Dorm***
3. ***Conant Hall***
4. ***Judd Hall/Bookstore***
5. ***Morrill Hall***
6. ***Robert Clarke Hall***
7. ***Green Hall***
8. ***Greenhouse***
9. ***Hartness Library***
10. ***Morey Residence Hall and Dining Hall***
11. ***Keenan Residence Hall***
12. ***President's House***
13. ***SHAPE fitness Center and Campus Center***
14. ***Nutting Residence Hall***
15. ***Fire Science Lab***
16. ***Construction Lab***
17. ***Facilities Center***
18. ***Red Schoolhouse***
19. ***Admissions Allen House***
20. ***Langevin House***
21. ***VTC Farm Complex***

The infrastructure report is organized in a methodology that provides prioritization of infrastructure recommendations. The highest priority group is life safety and building code compliance items. The second priority group is deferred maintenance/high system or equipment wear items. The third priority group is items related to building

performance and energy efficiency. The report will provide general details about systems within each building and then offer a combined recommendations section for ease of reference.
At each building, any code deficiencies noted are based on the latest adopted codes such as National Electrical Code, fire safety including NFPA 72, life safety including NFPA 101, Vermont Fire and Safety and Electrical, or other similar codes. When these systems were installed they were most likely code compliant at that time. Because most codes are "grand-fathered", the systems as they are installed now may comply with the relevant codes, however, any renovation work will typically precipitate making the recommended upgrades.

Although not included in most building descriptions, any renovation work should consider the use of LED lighting technology. LED lighting provides more lumens (measure of light output) per watt compared to other technologies, has a longer life, is usually inherently dimmable, generates less Ultra Violet (UV) light than fluorescent bulbs, is essentially mercury-free and there are typically rebates available.

It should also be noted that the existing primary voltage (12,470 volt) electrical distribution system for the campus is not included in this report. However based on casual investigations it was noted that this system consists of many older transformers and switches, and some older primary voltage cables that may be reaching the end of reliable life cycles. Many of the transformers are also less efficient than newer transformers.

Existing Conditions

Administrative Center

The Administrative Center building is a two story building with a central mechanical room located in the basement. The building is composed of both office spaces and conference rooms, and has a large central two story atrium lobby area.

Mechanical

The central heating system for the building is a two pipe hot and chilled water system that is heated from the central campus steam distribution. There are redundant shell and tube steam to water heat exchangers in the mechanical room as well as two redundant hot/chilled water circulation pumps. The pumps operate at constant speed with motor starters. The two pipe system is used for cooling in the summer and is fed from the chiller located on the north east side of Judd Hall. Each zone in the building is provided with a two pipe cabinet unit heater or radiator. Because of the nature of the two pipe system, the building cannot be in cooling until every zone can be placed in cooling. It was noted that there appears to be condensation below the radiator located at the entrance to the building. This appears to be due to the use of chilled water in the system during the summer months. We would recommend either adding a drain pan below the radiator or disabling the radiator when the building is operating in cooling mode.

A dedicated water source heat pump is utilized for cooling of the data center adjacent to the mechanical space. The heat pump uses domestic water for cooling and is provided with a dedicated water meter.

There is a central ventilation and conditioning air handling unit located in the north wing attic space. The unit supply is ducted throughout the building through mostly uninsulated exposed spiral ductwork. The unit has a central return that is located in the central atrium space. Return air pass-through grilles are provided at corridor doors in order to allow for return air to get back to the unit central return grille. Outdoor ventilation air is ducted into the unit through the attic space and connects to the unit return plenum. There is an insulated enclosure around the unit that limits access to the unit and hinders filter cleaning and replacement. At the time of the site visit the filter was half out of the filter rack. There is no exhaust air from the unit, bathroom fans located throughout the second floor of the building are ducted into a single exhaust duct in the attic in the south wing of the building. Based on the size of the outdoor air connection to the units is appears the outdoor air is only enough to replace the bathroom exhaust air.

All building controls are pneumatic. The main hot water coils are provided with 3-way control valves and the main hot water circulation pumps operate in a lead/lag configuration from motor starters. The pumps operate based upon the pump operational curve and do not modulate speed.

Plumbing

There is a central four inch combination fire protection water entrance located in the basement mechanical space. There does not appear to be a backflow preventer on the ¾" domestic water entrance. Supply distribution piping appears to all be soldered copper. Toilets are manual tank type toilets and urinals are provided with sensor type flushometers. The fixtures appeared to be in generally good condition, however they are not low flow type fixtures. There is a sump pit and pump located in the data rack room adjacent to the mechanical room. The waste from this pump runs directly above the racks and is not provided with a drain pan. The domestic water that is used for cooling in the server room by the water to air heat pump is connected directly into the waste line for the building. It doesn't appear that this system is provided with a backflow preventer which could lead to possible contamination of the domestic water in the building. It is also noted that there does appear to be a check valve on this system and the waste connection is not indirect, which would be required by the plumbing code. It was also noted that there are multiple domestic water pipes located directly over the server equipment. This includes a pumped waste line and supply piping. It is recommended that a drain pan be installed below the piping located over the equipment in this space or reroute the piping so it is no longer over the server equipment.

Fire Protection

The building is fully sprinklered and is served by a combination wet and dry sprinkler system. The system appears to have a code compliant alarm valve.

Electrical

The building is provided with a 400 amp, three phase, 208 volt service fed from outdoor padmount transformer. The building appears to be approximately 32 years old. All egress lighting is controlled via accessible switches. Most offices have minimal receptacles and data jacks; as a result there is significant use of extension cords and data cables along floors. At several corridor doors wooden wedges used to hold doors

open. There do not appear to be smoke detectors at elevator lobbies for recall. There is no cab lighting switch in elevator machine room. We recommend verifying that the elevator is tied to the fire alarm. Elevator dated to 1985. The building has horn/strobe lights in corridors however they do not appear to be spaced correctly. The basement where the telecom equipment is located was "damp", with a drain running over telecom equipment into a pit within room. There is a heat pump in the same room as telecom equipment in adjacent room. Panel MDP is mounted on wall with main breaker located 7' above floor. Panel MDP rated for 10,000 AIC. The fire alarm panel is dated 1986.

Most lighting is fluorescent however LED lamps are provided in corridor pendants. Many fixtures area 4T8 2x4 type troffer. There are some pendant 2T8 fixtures. Some 2T8 surface linear 4' rows of fixtures are located on the second level. The office wing corridor uses surface mount round (2) 13W PF lamps fixtures and it's very dark. There are few occupancy and no daylight sensors in building. Most lighting in the basement have T12 lamps. Stair lights appear to have emergency ballast. It was not clear if second floor emergency lighting is operational; there is a battery pack however the ready light is off and says only 7.5 VDC.

Old Dorm

The Old Dorm building is a two story structure with an occupied basement. The occupied basement is currently under renovation. The upper two floors of the building are student dormitories and bathrooms. Only the east wing of the dorm is currently occupied.

Mechanical

The central heating system for the building is a two pipe hot water system that is heated from the central campus steam distribution. There is a single shell and tube steam to water heat exchanger in the mechanical room as well as two redundant hot water circulation pumps. The pumps operate at constant speed with motor starters. Basement spaces are provided with ceiling mounted cabinet unit heaters. The balance of the building is heated by wall mounted radiators. The exhaust for the bathrooms located on the east end of the building is through a dedicated exhaust fan operated by a switch located in the third floor bathroom. We were not able to verify that the lower floor bathroom switches also enable this exhaust fan. There is no dedicated make up air for the exhaust at this end of the building. The remainder of the dorm bathrooms are exhausted through a Trane M series heat recovery ventilator (HRV) located in the attic at the west end of the building. The HRV is provided with a dedicated glycol heating coil with a circulator pump and brazed plate heat exchanger located in the ceiling of the janitor closet below the unit on the second floor.

All building controls are pneumatic. The main hot water coils are provided with 3-way control valves and the main hot water circulation pumps operate from motor starters. The pumps operate based upon the pump operational curve and do not modulate speed.

Plumbing

The main 1 ½" water entrance for the building is located in the north basement steam chase. It is provided with a water meter and reduced pressure zone backflow preventer. There is noe floor drain located below the backflow preventer. The water entrance is separate from the fire protection entrance to the building. Domestic water is heated

through a steam shell and tube heat exchanger and pumped to three Rheem 175 gallon storage tanks piped in a reverse return order. At the time of the visit the circulator pump for this system was missing a motor. Backup heating for summer operation is by a Bradford White 120 gallon electric resistance water heater. This water heater is also pumped through to the (3) storage tanks. The mechanical room is provided with a concrete sump basin and two sump pumps. The sump pumps are not interconnected into a pumped waste system.

Fire Protection

There is a 4" sprinkler main located in the mechanical space. The building is fully sprinklered by a combination wet and dry system. The dry system valve is located in the mechanical room and a floor mounted compressor is adjacent to the dry system valve. Bothe valves appear to be code compliant alarmed valves.

Electrical

The building is served by a 600 amp, three phase, 208 volt service fed via outdoor padmount transformer. There is a 600 amp panel located in mechanical room that feeds a 225 amp panelboard near kitchen in basement via a feeder run outdoors. The 225 amp circuit taps to an adjacent 400 amp panelboard. The 600 amp main panelboard and 400 amp panelboard are newer than the other panelboards in building. It is unclear why the panelboard tapped from the 225 amp panelboard is rated for 400 amps. The 600 amp MDP feeds all other downstream panelboards, most of which appear to be original equipment (1989 or so). Dorm rooms appear to have adequate receptacles and data jacks. There are no smoke detectors at elevator lobbies for recall. There is no cab lighting switch in the elevator machine room. We recommend verifying the elevator is tied to the fire alarm. The elevator is dated to 1988. The building has horn/strobe lights in corridors however they do not appear to be spaced correctly. Panel MDP is rated for 10,000 AIC. Panel MDP does not appear to have adequate/safe clearance in front, as it is located up on a concrete platform. Panel MP in the mechanical room does not have adequate clearance as it is blocked by an air compressor. The fire alarm panel appears newer. Most of the building is covered via fire alarm devices however at least two toilet/shower rooms do not have horns or strobe lights. The receptacles in the mechanical room are not GFI type. Dorm rooms appear to have adequate receptacles and data; all appear to have smoke detectors, horns or horn/strobes, carbon monoxide detectors.

All egress lighting is on switches. Most lighting appears to be fluorescent T8 lamp type. There are a few occupancy and no daylight sensors in building. There does not appear to be enough emergency lighting in stairwells.

It appears 600 amp MDP feeds power to "NE Tel" and "Adelphia" via dedicated panelboards. There is also an abandoned transfer switch that appears to not be used.

Conant Hall

Conant Hall is a two story building with the high voltage electrical equipment located in the basement at the west end of the building. At the time of the site visit there was a significant amount of water in the high voltage electric room.

Mechanical

The central heating system for the building is a two pipe hot water system that is heated from the central campus steam distribution. There is a single shell and tube steam to water heat exchanger in the mechanical room as well as two redundant hot water circulation pumps. At the time of the visit the insulation jacket on the heat exchanger was almost entirely off of the heat exchanger. The pumps are constant speed pumps with motor starters. Classrooms on the first and second floors as well as offices on the exterior of the building are heated and ventilated using hot water unit ventilators and radiators. The unit ventilators are fit with a dedicated outdoor intake louver that penetrates the exterior wall of the building. The second floor core interior space of the building is conditioned and ventilated by a Train Voyager roof top unit. The unit is ducted throughout the upper level of the building. The unit conditions the air from the hot water system by a 3-way control valve. The computer lab located on the first floor of the building in the north west corner is provided with a dedicated split system for cooling.

Ventilation air enters the building through the unit ventilators and is exhausted by the dedicated roof top exhaust fan for exhausting of the bathrooms. The first floor lecture hall is conditioned and ventilated by a dedicated air handling unit located in the mechanical space adjacent to the lecture hall. The air handler is equipped with a hot water coil and a direct expansion (DX) cooling coil and an outdoor air intake control damper. The audio/visual equipment room at the top of the auditorium area was particularly hot due to lack of exhaust or air conditioning.

All building controls are pneumatic. The main hot water coils are provided with 3-way control valves and the main hot water circulation pumps operate from motor starters. The pumps operate based upon the pump operational curve and do not modulate speed.

Plumbing

The domestic water entrance is located in the mechanical space. There is a 3” flanged entrance in the floor. The 1 ½” domestic water main is provided with a water meter and a bypass with a check valve. There does not appear to be a backflow preventer on the service. There is a concrete sump in the mechanical room with a simplex pump. Domestic water is heated by an electric resistance tank type water heater located outside of the electrical room in the basement at the west end of the building. Toilets are equipped with sensor type flushometers, but are not low flow fixtures.

Fire Protection

There is a limited area fire protection system for the building that serves the East two story stairwell in the building. The fire protection system is a 1 ½” service with a single swing check valve that comes from the 3” flanged domestic water entrance. The main is provided with a tamper and flow switch.

Electrical
The electric room in the basement was flooded the first time we visited the site. The main service entrance is (2) 400 amp, three phase, 208 volt main disconnect switches; one for Conant and one for Judd Hall. Both services are fed via (3) 37.5 kVA pole type transformers located in the adjacent vault. The vault is in fairly good shape, and there is a curb around transformers to retain any oil leak. All equipment appears to be original to the building. Most electrical equipment appears to be original to the building (circa 1966). The fire alarm panel is an older zoned system (1990) although some devices throughout appear to have been replaced over time. The remote annunciator panel for the fire alarm appears to not be operational. Computer labs appear to have been provided with additional power and data; receptacles are fed via dedicated newer panelboards. However there are still some data cables run along floor. Most other locations are not provided with many receptacles or data outlets. The elevator machine room does not have a cab lighting switch. There is no smoke detector in the lobby for recall. Controls for HVAC equipment in mechanical room appear to be original equipment. There are no receptacles adjacent to outdoor equipment (this is an issue in many locations on campus, all of which are not noted in this report.)

Most lighting is 2x4 2T8 fluorescent troffer type. Exit signs are older although in some corridors there are newer exit signs with emergency lamps. It appears that in stairwells the emergency lighting is via a battery system in basement. This battery does not appear to be operational and has heavy corrosion. It is plugged in. The lecture hall lighting control is old and confusing. There is an old dimming controller that may no longer be in operation. The lecture hall has a combination of 4T8 parabolic 2x4 fixtures and spot lights.

Some renovation work in the center of second floor appears recent and offices in that area are provided with more receptacles and data. Where renovation work has not recently been performed on the second floor, many light fixtures are not operating. Most offices in these areas have very few receptacles and data outlets.

Judd Hall/Bookstore

Judd hall is a one story building with a bookstore located on the east end of the building, a tennis/basketball court and bleachers in the center of the building, and offices at the west end.

Mechanical
The book store is conditioned by a dedicated air handling unit with a hot water coil and DX cooling coil. There is a 4 ton condensing unit for the air handler located adjacent to the building next to the air cooled chiller that serves both Judd Hall and the Administration buildings.

The tennis court area is conditioned and ventilated by an air handler located between the book store and the tennis courts. The unit is a Train M Series air handler with a heat recovery wheel, steam heating coil, and chilled water cooling coil. The chilled water for the air handler comes from the air cooled 30 ton chiller located adjacent to the east end of the building.

The offices on the west end of the building are heated by perimeter hot water radiators and cooled by a Trane air handler located in the old bathroom area. The air handler is equipped with a DX cooling coil with the remote condensing unit located on the south side of the building. Because the entire zone of the air handler includes the offices on both sides of the entry vestibule, cooling cannot be utilized in any particular office unless the entire zone is in cooling.

Plumbing
The 1 ½" main domestic water entrance to the building is located in the air handler mechanical room. There is a pressure reducing valve, meter, reduced pressure zone backflow preventer and bypass in the room. There did not appear to be a floor drain located in the space for the backflow preventer. Domestic water is heated by an electric resistance Rheem 30 gallon tank type water heater located under the bleacher seating on the south side of the building. There is a main domestic mixing valve located above the water heater and a Taco domestic water recirculation pump. We recommend that the facilities staff verify that the recirculation pump is controlled via time clock or end of the line temperature sensor. Domestic water distribution piping is copper and appears to be in good condition.

Fire Protection
There is no fire protection system in this building.

Electrical
The building is served by an electric service 300 amp, three phase, 208 volts fed via 400 amp feed from Conant Hall. The Book store and tennis court areas appear to have been renovated, while the office section of building has not been renovated recently. The book store is relatively new. A new fire alarm has been installed throughout the entire building, with voice evacuation. Panel MDP is 300 amp, three phase, 208 volts. Technically, the location of Panel MDP could be considered non-compliant due to concrete beam blocking exit, this will need to be reviewed by the local AHJ. Most of the electrical panels for renovated areas installed around 2009. Most locations in office area are not provided with many receptacles or data outlets. There is no elevator; just an ADA lift. Exterior receptacles are missing covers and apparently some are not operational.

Most lighting in the office (non-renovated) space is 2x4 3T8 fluorescent troffer type or 2T8 surface wrap type fixtures. Emergency lighting appears to operate correctly. It appears tennis court lighting is high bay HID type. Newer restrooms are provided with occupancy sensor lighting, however spaces are dark due to missing ceiling tiles.

Morrill Hall

Morrill Hall is a two story building with a mix of classrooms, labs, animal rooms, and office spaces. It is interconnected with Clarke Hall through a first floor corridor.

Mechanical
The central heating system for the building is a two pipe hot water system that is heated from the central campus steam distribution. There are two heating zones within the building. The south end of the building is served by two redundant base mounted pumps and a single shell and tube steam to water heat exchanger located in the mechanical

room. The main northern two story building is served by three redundant hot water circulation pumps and a single shell and tube steam to water heat exchanger located in the mechanical room. Animal lab spaces are conditioned by air handlers located above the ceilings with ceiling supply and low return grilles. The operating area air handler is provided with a 1 ton DX cooling coil and a remote condensing unit located outside to the north of the animal operating area. The second floor classrooms are heated and ventilated by unit ventilators located along the perimeter of the building. There are gravity relief dampers located in some of the larger classrooms to allow for some exhaust.

An air handler with a hot water coil is located in the mechanical room and serves the adjacent lab spaces to the south of the mechanical room. The unit is provided with a 3-way control valve for heating of outside air. There are (4) laboratory exhaust hoods within the lab and each hood is provided with a dedicated roof mounted exhaust fan and vertical termination. The lab space is heated by a hot water ceiling mounted cabinet unit heater fed from the Morrill mechanical room hot water system. The lab chemical storage room has a dedicated exhaust fan that ventilates the space. However, the two adjacent storage spaces and the laboratory office are not provided with any ventilation air. The Janitor closet located adjacent to the Morrill mechanical room also appeared to have no exhaust air.

The HVAC lab is equipped with a dedicated Carrier air handler for make-up air. The Make-up Air Unit (MAU) is provided with a 3-way hot water control valve and DX cooling coil. There are two 4' exhaust hoods located in the space for welding with a dedicated exhaust fan located on the roof of the building. The space is conditioned by two ceiling mounted cabinet unit heaters.

The adjacent labs and classrooms on the first floor connector are conditioned and ventilated by ceiling or floor mounted unit ventilators connected through louvers to the outdoors. There are relief dampers provided in the spaces that allow for gravity exhaust through the exterior wall. There are also three roof mounted exhaust fans that induce ventilation airflow. The exhaust fans are ducted to each room and connected with ceiling exhaust grilles.

The IT office suite area is conditioned by a ceiling mounted air handler located in the storage room adjacent to the offices. The unit has a hot water heating coil and a DX cooling coil with dedicated outdoor condensing unit. The server room is cooled via a Liebert vertical air handler with DX coil. The outdoor unit is located to the south of the suite. Based on the model number information the unit refrigeration is likely R-22 which is no longer an approved refrigerant by the EPA.

The wood shop lab on the first floor has a dedicated vortex dust collector system. There is no ventilation in the wood shop other than an operable window. The vortex unit is a recirculating filter type system. Classrooms are heated and ventilated through exterior mounted unit ventilators.

All building controls are pneumatic. The main hot water coils are provided with 3-way control valves and the main hot water circulation pumps operate from motor starters. The pumps operate based upon the pump operational curve and do not modulate speed.

Plumbing
There is a 2" domestic water entrance located in the mechanical space. There is a line size reduced pressure zone backflow preventer. The backflow preventer vent is piped into the steam chase below the mechanical room. In the event this valve releases water, it will flood into the chase area. Domestic hot water is heated through a shell and tube heat exchanger located in the mechanical space. There is an electric resistance tank type water heater for summer use. The water heater is a State Select 80 gallon unit. Toilets in the building are tank type flush toilets and urinals are equipped with electronic flushometers.

Fire Protection
There is a limited area fire protection system that serves the building. It is fed from the 2" water service in the mechanical room. The 2" fire protection feed is provided with two swing check valves. The system is provided with a tamper and flow switch.

Electrical
The building is fed by a 600 amp, three phase, 208 volt service fed via (3) 50 kVA high voltage transformers in adjacent vault. The main panelboard feeds the large panelboard in Morrill Annex building. Appears the main 600 amp disconnect switch and adjacent main distribution panelboard are newer than some other panelboards in building (original equipment circa 1962; new main service and Morrill Annex main panelboard circa 1991). Mechanical room Panel EP2 provided with standby power from Clark Hall Panel EP1. Panel EP2 does not have a main breaker disconnecting means. Most classrooms have minimal receptacles and data jacks. At several corridor doors wooden wedges used to hold doors open. Fire alarm system appears new and appears to be served via Clark Hall fire alarm system, although there are some location issues for horn/strobes. It appears smoke detectors are provided at elevator lobbies for recall. There is no cab lighting switch in elevator machine room. Need to verify elevator tied to fire alarm. Elevator dated to 1993. The Morrill Annex portion of building appears to have had some renovation work done over time.

All egress lighting on switches. Most of the lighting is fluorescent however most of the Annex labs have LED fixtures. The Architectural lab has some color correcting LED fixtures. Wall sconces in the Annex are retrofit with LED lamps. Many fixtures in other spaces appear to be 4T8 2x4 type troffer. There are few occupancy and no daylight sensors in building. There appears to be a code compliant quantity of emergency lighting in the Annex and corridors, however stairwells do not appear to have enough emergency lighting.

Robert Clarke Hall

Robert Clarke Hall is a three story building with a mix of classrooms, labs, and office spaces. It is interconnected with Morrill Hall through a first floor corridor.

Mechanical
The majority of the building is conditioned and ventilated by a Train air handling unit (AHU) located in the lowest level of the building at the south end. The unit utilizes a DX

cooling coil and hot water heating coil. The unit is not provided with heat recovery for ventilation air. The remote condensing unit for the AHU is located outdoors to the south of the mechanical space. The AHU is a recirculating unit with outdoor air and exhaust ducting connected to louvers on the exterior of the mechanical space that provide ventilation or economizer operation. Classrooms and offices are provided with perimeter finned tube radiators for zone space temperature control. The air handling unit is provided with a clean steam humidifier located adjacent to the unit in the mechanical room. Lab spaces on the second floor have constant volume exhaust hoods. Make up air for the hoods is provided through the AHU. The AHU and mechanical systems in the two story area of Clarke hall appear to be relatively new and in good condition.

All building controls are pneumatic. The main hot water coils are provided with 3-way control valves and the main hot water circulation pumps operate from motor starters. The pumps operate based upon the pump operational curve and do not modulate speed.

Plumbing

There is a 2" domestic water entrance located in the mechanical room with a fully vented low pressure zone backflow preventer. The backflow preventer vent drain is not provided with a floor drain and should be piped to the outdoors. Domestic hot water is heated through redundant shell and tube heat exchangers and a Bradford White 30 gallon tank type electric resistance water heater that provides hot water during the summer months. There is a central mixing valve for the building located in the mechanical room. There is a domestic hot water recirculation system in the building. A series of three water softener units located in the east mechanical room wall condition domestic cold water for the building. The HVAC lab has a dedicated water softener and (4) gallon semi-instantaneous electric resistance water heater located on the south wall of the space.

Fire Protection

The building is fully sprinklered by what appears to be a code compliant NFPA 13 wet system with backflow preventer and tamper and flow switch alarms. The main sprinkler and domestic water entrance valves are located in the southern mechanical room.

Electrical

The building is served by a 1000 amp, three phase, 208 volt service via switchboard. Installed around 2000. The electric room has a door swinging inwards with no panic bar. There are (2) transfer switches located in mechanical room; one for life safety and one for standby power. Standby power also provides power to the Morrill Hall mechanical room. Most classrooms and offices appear to have adequate receptacles and data jacks. At several corridor doors wooden wedges were being used to hold doors open. The fire alarm system appears new. It appears smoke detectors are provided at elevator lobbies for recall. The elevator is dated to 2000.

Most of the lighting is fluorescent however many fixtures have had T8 lamps replaced with LED "tubes", particularly in classrooms and labs. Occupancy sensors are also provided in these spaces. All egress lighting appears to be on keyed switches. Most emergency lighting is on a life safety branch; additional battery powered lighting has been added to stairwells. There are few occupancy and no daylight sensors in building other than labs. It appears the emergency lighting is code compliant.

Green Hall

Green Hall is a two story building with a split level wing that consists of lab spaces. The mechanical room for the building is located in the connector between the two main buildings. There are two mechanical Penthouses located on the roof of the central area of the building.

Mechanical

The central heating system for the building is a two pipe hot water system that is heated from the central campus steam distribution. There are redundant shell and tube steam to water heat exchangers in the mechanical room as well as two redundant hot water circulation pumps. At the time of the visit it appeared one of the pumps had been decommissioned. Classrooms and offices throughout the main building are heated and ventilated by unit ventilators. The intake for the unit ventilators is concealed on the exterior of the building by concrete intake screens. Vestibules and corridors are heated by a combination of cabinet unit heaters, fan coil units, and finned tube radiators. There is a water source heat pump located in the mechanical room for cooling that was part of a heat recovery retrofit and is no longer in operation. The mechanical space during steam operation is exceeds a comfortable occupancy temperature. There is a dedicated in-line exhaust fan that exhausts the electrical and mechanical spaces. There is a storage room located in the mechanical basement that does not appear to have any ventilation air. A Freidrich mobile air conditioner is installed in the data closet located within the mechanical basement space with intake and exhaust ducted through the wall into the mechanical room. Laboratory and computer spaces are cooled by heat pumps located above the ceilings and remote outdoor condensing units located on the roof of the building.

The civil engineering laboratory is conditioned and ventilated by a dedicated air handling unit located over the civil laboratory storage rooms. The unit is provided with a hot water coil and 3-way control valve. The asphalt testing lab area is provided with a single exhaust hood broken up into (4) separate dedicated exhaust fan hood sections. Exhaust fans operate based on a user operated switch or bench mounted temperature sensors.

The civil engineering laboratory storage room is exhausted by a dedicated exhaust fan. The brick storage room has no ventilation or exhaust provided.

Bathrooms and janitor closets in the main Green Hall building (not the split level area) are exhausted by exhaust fans located in the mechanical penthouses. Make-up/ventilation air for the building is provided through two rooftop air handling units (RTUs). Each RTU is provided with a hot water coil with 3-way control valve, as well as a DX cooling coil. The condensing unit for each air handler is located in the screened area adjacent to the penthouse. The condensing unit for the RTU on the west side of the building has been decommissioned. Therefore there is no cooling provided through this unit. It was also noted that the main exhaust fan for the west end of the building was not operational at the time of the site visit. This exhaust fan served the janitor closets on this wing of the building. The lower level closet has been converted to a data closet and there is no sink in the second floor closet. The first floor printer room is not provided with exhaust for the printers.

All building controls are pneumatic. The main hot water coils are provided with 3-way control valves and the main hot water circulation pumps operate from motor starters. The pumps operate based upon the pump operational curve and do not modulate speed.

Plumbing
Domestic hot water is heated by an electric resistance 40 gallon tank water heater. The water heater is located in the sub-basement mechanical room. The domestic water is provided with a domestic water recirculation pump. The domestic water system is missing insulation in many locations throughout the mechanical space.

Fire Protection
There is no fire protection system in the building.

Electrical
The building is served by a 1600 amp, three phase, 208 volt service. The service appears to have been installed around 1969. Most electrical infrastructure appears to be original equipment. The service is fed via a high voltage dry type 600 kVA transformer in adjacent vault. The electric room does not have two exits or panic bars. The fire alarm system appears new. At several corridor doors wooden wedges were used to hold doors open. I appears smoke detectors are provided at elevator lobbies for recall. The elevator is new and dated 2014. The corridor and stair lighting is on switches.

Most lighting is fluorescent 2x2 and 2x4 troffer type, 4' wraps, with industrial or wraps in mechanical room type spaces. Some lab lighting has T8 lamps replaced with LED "tubes". There are few occupancy and no daylight sensors in building. Some occupancy sensors are very old. It appears the emergency lighting is code compliant.

The greenhouse has some T8 industrial light fixtures that are in bad shape and some vapor-tight fixtures in better shape. There is some electric heat in the greenhouse. Otherwise the electrical appears to be in fair shape.

Greenhouse

The greenhouse is a glass enclosure attached to Green Hall.

Mechanical
The greenhouse is provided with finned tube radiation fed from the Green Hall hot water system. It does not appear that the fin tube fluid is a glycol solution. This could result in a possible freeze condition unless the fin tube is drained in the winter. There are two electric resistance unit heaters located in each of the two sections of the greenhouse. The greenhouse is fitted with automatic window openers that allow for natural convection cooling of the greenhouse in the summer.

Hartness Library

Hartness Library is a single story building with a mechanical penthouse and mechanical room basement.

Mechanical

The central heating system for the building is a two pipe hot water system that is heated from the central campus steam distribution. There is a shell and tube steam to water heat exchanger located in the mechanical room sub-basement as well as two redundant hot water circulation pumps.

The central ventilation and cooling system in the library is a 20 ton Trane DX cooled air handler located in the mechanical penthouse. The unit is provided with a dedicated Greenheck return fan. The cooling coil is a two circuit coil connected to two 10 ton outdoor condensing units located on the north side of the library. The unit is equipped with outdoor and relief exhaust dampers in order to provide ventilation to the space. The library is heated by perimeter finned tube radiators located on the exterior walls of the space. The central office area of the library is conditioned by a ceiling mounted air handler located in the first floor mechanical room. The unit is provided with a hot water heating coil and DX cooling coil. This unit is connected to a two ton condensing unit located outside to the north of the library.

Controls for the building are digital controls. Each zone is provided with a dedicated thermostat/CO2 sensor. The controls are Johnson control type.

Plumbing

There is a ¾" domestic water entrance to the building. Domestic hot water is heated by an electric resistance 40 gallon tank water heater. The water heater is located in the sub-basement.

Fire Protection

There is no fire protection system in the building.

Electrical

The building is served by a 600 amp, three phase, 208 volt service fed via outdoor padmount transformer. The 600 main panel MDP was installed around 2011. MDP is provided with surge protection. Fire alarm system appears new. There is no elevator in the building. The 480 volts is fed via an energy efficient transformer from the 208 volt system for site lighting.

Most of the direct/indirect T8 fluorescent pendant lighting in library area is perpendicular to shelving, making for shadows and dark areas. Office areas using 2x2 recessed indirect troffer lighting; appears to be T8. Wattstopper dimming and wall occupancy sensor controls in most offices. It appears the emergency lighting is code compliant although it appears to be older incandescent type; installed in ceiling.

Morey Residence Hall and Dining Hall

Morey Residence Hall and Dining Hall is a three story dorm building with an occupied basement. There is a lounge and laundry room located in the occupied basement. The main level of the building is made up of a single story dining room on the east side of the building and two story kitchen facility and mechanical basement on the west side of the building. There is a half basement/pipe chase connector from the occupied basement area to the basement mechanical space located below the kitchen. A dishwashing room and kitchen office are located in the kitchen area. The dining room is adjacent to the kitchen. There is a single suite of offices located on the first level of the dorm building separated from the dining area by the main entry vestibule and public bathrooms. The student dorm rooms are located on the upper three floors of the building. The residence hall floors are made up of student rooms along the exterior of the building and a central area containing group bathrooms, janitor rooms, and student common rooms.

Mechanical

The central heating system for the building is a two pipe hot water system that is heated from the central campus steam distribution. There are redundant shell and tube steam to water heat exchangers in the mechanical room as well as two sets of redundant hot water circulation pumps. There is a second set of hot water pumps that provide heating to the Keenan Residence Hall.

The first floor office suite is heated by finned tube radiators located on the perimeter walls. The student rooms are also provided with finned tube radiators located on the exterior of the room.

Ventilation for the first floor offices is through operable windows. The student level group bathrooms and janitor spaces are exhausted by a rooftop fan located in a louvered penthouse enclosure. At the time of the site visit a recent wind storm had damaged the penthouse enclosure, which was bent and hinged open exposing the internal fan components to the elements. Make up air for the group bathroom exhaust fan is supplied by an indoor air handling unit located in the third floor mechanical space. The unit is provided with a hot water heating coil that is controlled by a 3-way control valve.

There is a central make up air handler that is located in the basement mechanical space. The air handler is provided with a hot water heating coil and chilled water cooling coil. Temperature control is via 3-way valves for each coil respectively. The make-up air unit is ducted to the dining space and two transfer grilles allow for the make-up air to enter the kitchen area. The make up air unit is also ducted to two supply grilles located in the main kitchen area. There is a storage room in the basement adjacent to the make-up air unit that does not have any ventilation air.

The kitchen exhaust fan serving the central island canopy hood is located over the kitchen storage area on the first floor level. The exhaust fan is an inline belt driven unit; the model number was not visible. Grease laden exhaust ductwork appears to be uninsulated galvanized duct and the inline exhaust fan termination on the roof is through a penthouse exhaust louver. There is a second exhaust fan located on the roof above the kitchen that serves the island bakery hood, and a third fan serving the grill area in the front of house. The grille area duct is welded stainless grease duct. None of the

hoods or fans are fit up to operate with variable volume control, each hood has a manual on/off switch. It appears that kitchen hoods may have been designed around different kitchen equipment than what currently exists. This could result in underperforming smoke removal. The dishwasher area is provided with two exhaust grilles located over the entrance and exit of the dishwasher conveyor. There is a dedicated exhaust fan for the dishwasher located in the fan room adjacent to the kitchen. The fan does not have a manual enable switch and is likely controlled based on the dishwasher operation only.

An air cooled chiller is located outside of the building to the north of the basement mechanical space. It is a 40 ton Carrier chiller. There are redundant base mounted chilled water circulation pumps located in the half basement connector area. They are Bell and Gossett and are on/off operational pumps provided with motor starters. The chilled water system is filled with a glycol solution and appears to be drained during the winter months.

All building controls are pneumatic. The main hot water coils are provided with 3-way control valves and the main hot water circulation pumps operate from motor starters. The pumps operate based upon the pump operational curve and do not modulate speed.

Plumbing

There is a separate 3” domestic water service entrance located adjacent to the 4” fire protection entrance to the building located in the basement gym storage area. There are sections of the pipe around the domestic water entrance and backflow preventer that are uninsulated. These sections of pipe were sweating and condensation appeared to be creating mildew on the floor of the room. There did not appear to be a floor drain located in the water entrance room.

The public toilets are tank type and urinals are fit up with sensor flushometers, they are not low flow fixtures.

The kitchen is provided with two interior grease traps. One is located adjacent to the dishwasher and the other serves the three bay pot sink. The dishwasher should not be provided with a grease trap.

Fire Protection

There is a 4” fire protection service that enters into the gym storage room. The building is fully sprinklered with a wet system and provided with a code compliant alarm valve. Residence hall cooking ranges are provided with dedicated ansul systems and exhaust hoods.

Electrical

The building is served by a 1000 amp, three phase, 480 volt service. This service is fed via high voltage transformers in the adjacent vault. It appears most of the electrical infrastructure is original equipment (1965?). The main 1000 amp breaker does not appear to have ground fault protection. The main switchboard does not have adequate clearance, is located in non-code compliant electric room. The 480-208 volt transformers appear to be original equipment. The electric room door swings the wrong direction inwards and there is no panic bar. There are a significant number of downstream transformers, some of which are original equipment. Several downstream transformers

provided with non-code location compliant disconnect switches. “Life Safety” power via 200 amp transfer switch from 150 kW outdoor generator (generator also feeds Keenan). This life safety system appears to only have lighting on it, however it appears to have been sized to add additional loads. The life Safety power system is newer than the rest of the electrical infrastructure. The transformer and associated disconnects (for kitchen panelboards) are located in a “crawl” space (less than 6.5’ clear) in basement. Some other panelboards throughout the building are newer than original equipment. There are lots of exposed junction boxes. Some electrical panelboards are blocked by items being stored in front. The laundry circuit breakers not GFI type. There is a lack of receptacles in mechanical spaces in the basement. Some receptacles are not at ADA heights. There is a lack of receptacles in some offices. The fire alarm appears new and for the most part code-compliant; strobe locations in corridors may need to be revised. Most dorm rooms appear to have adequate receptacles, data, smoke and carbon monoxide detectors. The fire alarm system appears new. It appears smoke detectors are provided at elevator lobbies for recall. The elevator is new and dated 2014. Some corridor doors are wedged open. The third floor lounge does not have fire alarm strobe light. Some exterior HVAC equipment does not have a local maintenance receptacle provided.

Most lighting fluorescent 2x2 and 2x4 troffer type, 4’ wraps, with industrial or wraps in mechanical room type spaces. In student affairs appears to be too much lighting. Dining area lighting newer. There are few occupancy and no daylight sensors in building. Corridor, dining and stair lighting is all on switches. The kitchen has a combination of gasketed and non-gasketed lighting. A central battery, located near the kitchen, appears to be providing emergency power for lighting in the dining area. The battery and lights appear to be very old and it is not clear if system operates correctly. It is assumed some lighting in the dorm corridors is on the “life safety” system, however it is not expected the emergency lighting is code compliant.

Keenan Residence Hall

Keenan Residence Hall is a three story split level building consisting of dorm rooms, group bathrooms, and common spaces. One wing of the building houses the health center patient rooms and offices on the ground level.

Mechanical

The central heating system for the building is a single pipe hot water system that is heated by hot water from Morrill Hall. The main system hot water is heated through a plate and frame heat exchanger located in the basement mechanical space. There are two redundant hot water circulation pumps and two main hot water control valves that serve each student wing of the building.

Ventilation for the dorm rooms is provided through operable windows. The group bathrooms of each wing are exhausted by utility set type fans located in the unconditioned attic penthouse spaces of each wing. The fans are ducted to each bathroom and there is grille located in each bathroom area. The make up air for the bathrooms is provided through gravity ductwork with a grille located in each bathroom.. The central commons area and public kitchenette are conditioned and ventilated by an indoor air handling unit located in the mechanical space adjacent to the kitchen. There is

a single AirXchange heat recovery ventilator located below the central commons area that provides ventilation throughout the basement spaces.

All building controls are pneumatic. The main hot water coils are provided with 3-way control valves and the main hot water circulation pumps operate from motor starters. The pumps operate based upon the pump operational curve and do not modulate speed.

Plumbing

The domestic water entrance for the (A and C Wings) is located in the sub-basement area of the east wing of the building. The room is accessed from the exterior. There is a meter on the water entrance. We were unable to locate a backflow preventer on this water entrance, but facility records show a 2 ½" backflow preventer installed on the domestic water line. The room is provided with a concrete sump and simplex pump. There is a second domestic water meter serving the B wing located in the plumbing room with a 2 ½" backflow preventer. There is an abandoned tank type electric water heater below the C wing in the sub-basement area. There are (2) 40 gallon Rheem tank type water heaters located in the A wing adjacent to the health center area that appear to serve the A wing. Domestic hot water for the C wing is heated by a brazed plate heat exchanger located in first floor water heater room from the hot water heating system. The heated domestic water is then stored in (1) 175 gallon Rheem storage tank. There are (2) Rheem 80 gallon electric resistance tank type water heaters in the water heater room for summer use. This room is located in the south wing of the building. There is a mix of PVC and cast iron waste pipe in the building. In a couple of the bathrooms the waste pipe from the sinks was plumbed in front of the cabinet unit heaters, which would appear to limit access to the mechanical equipment.

Fire Protection

The building is fully sprinklered by a wet system. The fire department Storz connection is located on the east end of the C Wing of the building.

Electrical

The building is served by a 1600 amp, three phase, 480 volt switchboard with 1000 amp main breaker. It appears electrical infrastructure to be original equipment (1966). The main 1000 amp breaker does not appear to have ground fault protection. Main switchboard does not have adequate clearance, is located in non-code compliant electric room. Fed via high voltage dry type 750 kVA transformer in same room. In at least one electrical closet the clearances in front and top of panelboards is not per NEC requirements. Spacing of carbon monoxide detectors at dorm rooms technically not code compliant. The same generator serving Morey Hall also provides "life safety" power to Keenan via a 200 amp transfer switch, which appears to serve one or more "LP" lighting panels.

Fire alarm system appears new. At several corridor doors wooden wedges used to hold doors open. The dorm rooms appear to have adequate receptacles and data jacks, along with smoke and carbon monoxide detectors. However it appears the rooms do not have horns or strobes. Unclear if there is code compliant audible alarm. Dorm room corridors also have carbon monoxide detectors in addition to the dorm room detectors. Strobes within corridors not located per code.

Many mechanical spaces do not have GFI receptacles.

Most lighting fluorescent 2x2 and 2x4 troffer type, 4' wraps, with industrial or wraps in mechanical room type spaces. Most common space lighting appears to be on 24/7, although there is an occupancy sensor in the first floor lounge. There are no battery powered emergency lights within the building other than few in stairwells, at least one of which is not operational. Although it appears the generator serves the building lighting panelboards, it is unclear what lighting, if any, is on a code compliant emergency power system.

President's House

The President's House is a standalone residence with a two car garage, two main levels, and both finished and unfinished basement areas.

Mechanical

The building is heated by an Energy Kinetics System 2000, 120,000 btu/hr oil fired boiler located in the half basement. The boiler appears to be at the end of its life cycle. There are (2) 275 gallon oil tanks located adjacent to the boiler in the basement. The boiler serves four zones throughout the house. The upstairs bedrooms are a single heating zone, the living room, Kitchen and Den, and Basement are all single zones with dedicated circulator pumps located in the boiler room. Zone heating is completed by finned tube radiators located around the perimeter of the spaces. There are also multiple electric resistance heating units in the house. The main entryway lobby area at the base of the main stairwell is heated by an electric resistance wall mounted cabinet unit heater located in the bathroom wall. The upstairs of this zone is provided with an electric resistance base board heater outside of the upstairs bathroom. The upstairs bathroom is also provided with an electric resistance radiator. Zone heating controls are through a mix of mercury type thermostats.

There is no mechanical ventilation provided for the building. Each bathroom is provided with a bathroom fan operated on a manual timer switch. The two upstairs bathroom fans exhaust into the attic space just above the level of the insulation. In the case of the master bathroom, the insulation has been pulled back from the fan outlet to allow for airflow.

There is a mobile dehumidifier located in the finished basement area that appears to be used effectively as a permanent dehumidifier for the space.

Plumbing

There is a ¾" domestic water entrance in the building. Domestic water is heated by a Crown Boiler Co. 51 gallon indirect water heater located in the basement electric room. There did not appear to be a domestic water mixing valve installed at the water heater. There is a floor drain located in this room. Condensate from the dehumidifier in the hallway is piped through the wall and drains into this floor drain. The visible waste piping in the house is PVC pipe. The invert of the waste is below the basement level based on the multiple floor drains located in the basement areas. There is a sump pit and pump located in the half basement boiler room. Fixtures in the main entry lobby bathroom

appear to have been replaced recently and are the newest plumbing fixtures within the house. All toilets are different brands but are all 1.6 gpf.

Fire Protection
There is no fire protection system for the building.

Electrical
The building is served by a 400 amp, single phase, 120/240 volt service. The residence is fed via a padmount transformer in the back yard. The service entrance is a 400 amp disconnect in basement which appears to feed two load center panels. This does not appear to be the original equipment (house built circa 1971). Neither load center appears to be rated for 400 amps and do not have main breakers. It is unknown if the main 400 disconnect is provided with 200 amp fuses. One load center has a 100 amp, 2 pole breaker feeding an outdoor power panel via direct buried cable. Adjacent to the outdoor transformer are a disconnect switch and alarm for a pump station. The electrical load center and main disconnect appear to be at least 40 years old. There is no arc fault circuit interrupting (AFCI) breakers or protection. Most circuiting within house is non-metallic sheathed ("romex") type cable.

In the kitchen, it appears that the dishwasher and receptacle adjacent to sink are fed via GFI breakers in one of the load centers in the basement. It appears no other receptacles in the kitchen are ground fault interrupting (GFI) protected. Throughout the house, there are many locations where receptacles are not laid out to be within 6' of any location on wall. On any wall over 24" at least one receptacle is required. There are several shorter walls over 24" with no receptacles. This is more of an issue in the basement and second level, however a few locations on the first floor as well. In the basement and second level hallways, there are no receptacles.

Most lighting is 65 watt recessed can type. Several of these fixtures have been retrofitted with LED fixtures, and some 65 watt bulbs have been replaced with compact fluorescent lamps (CFL) type. LED "tape" light is installed for undercabinet lighting in the kitchen. The lighting in the attic was not operational; it is assumed to be a bulb issue. The exterior pole mount lighting is high pressure sodium type and very old.

The house is provided with a smoke detector on each floor. Carbon monoxide detection is provided outside the doors of the bedrooms. There are no smoke detectors in bedrooms. It is unclear if the smoke detector and carbon monoxide detectors are powered via 120 volts.

When the house was built, the electrical codes (NEC) were different from today. It is unclear if the initial installation was per code, however due to the extensive changes to the NEC for dwellings the existing installation does not meet the most recent NEC requirements.

SHAPE Fitness Center and Campus Center

SHAPE Fitness Center is a two story building connected by a single story connector to the Campus Center. SHAPE consists of a mix of office spaces, Gymnasium, Natatorium,

Locker Rooms, Racquet Ball courts and corridors. The Campus Center consists of a main dining room, commercial kitchen, lounge area, and fitness room.

Mechanical

The central heating system for the building is a two pipe hot water system that is heated by steam fed through Nutting Hall. The main hot water system is heated through a plate and frame heat exchanger in the basement mechanical space on the north end of the facility. There are two redundant hot water circulation pumps.

Conditioning and ventilation for the SHAPE building is accomplished by indoor air handling units located in a mechanical room on the second floor of the facility, south of the gym. There is a dedicated AHU for each of the zones. The zones are the gym, the gym office area, basement rooms, natatorium, and racquet ball courts. Each air handling unit is provided with a hot water heating coil with a 3-way control valve. Each air handling unit is also provided with a dedicated inline return and exhaust fan. The locker room air handler is provided with a plate heat recovery unit. This unit preconditions the ventilation air to the zone. The natatorium fans are provided with VFDs for fan speed control, but appear to only be used for balancing of the system. The natatorium supply duct is located high on the interior of the pool area with linear bar grille returns located around the perimeter of the space. This design helps reduce the spread of chloramines by returning the air that is closest to the pool surface where the highest density of the molecules are concentrated.

There is a secondary basement mechanical space that serves the Campus Center. This mechanical room is provided with a steam to hot water shell and tube heat exchanger for heating hot water as well as redundant pumps. The pumps are provided with VFDs. Each AHU serving the Campus center is provided with a two way control valve for hot water heating. The air handling units are provided with dedicated outdoor intake ducts and returns with control dampers for ventilation supply. Each zone is also provided with a ducted exhaust air fan for ventilation, with exception of the air handler serving the lounge area. The lounge unit is providing make up air to the commercial kitchen. There is a 14’ 7” kitchen exhaust hood located in the kitchen space. The hood is equipped with a Melink variable speed controller that varies the volume of the exhaust air based on the temperature of the exhaust or the presence of smoke. The Exhaust fan for the hood is a rooftop up blast Greenheck CUBE fan. There is a dedicated janitor closet exhaust fan located in the closet within the kitchen area. This fan is provided with a manual speed controller but appears to be operating at approximately full speed at all times. The walk in cooler and freezer are provided with dedicated remote condensing units located on the roof of the building above the kitchen area.

The building controls are a mix of pneumatic and digital. The main hot water coils in the SHAPE facility are provided with 3-way pneumatic control valves and the main hot water circulation pumps operate from motor starters. The pumps operate based upon the pump operational curve and do not modulate speed. The equipment serving the Campus center is provided with two way control valves, variable speed pumps and VFDs for all of the unit fans. Ventilation to each zone is measured by an Ebtron airflow station and the readings can be seen on the airflow meters located within the basement mechanical space.

Plumbing
There is a 3" domestic water main from the 8" fire protection entrance. The water entrance is provided with a reduced pressure zone backflow preventer. Domestic hot water is heated by three Rinnai semi-instantaneous water heaters. Domestic water is provided with a central mixing valve and recirculation system. Because of the arrangement of recirculation and instantaneous heaters there will be a constant draw on the heaters during the operation of the recirculation pump, however, domestic hot water recirculation is a requirement of the current energy efficiency code.

Fire Protection
The building is fully sprinklered by a wet system with the fire protection entrance and valves located in the basement mechanical room. The system is provided with a code compliant alarm valve. The upright sprinkler heads in the natatorium area should be checked for corrosion due to the pool environment within the space. It appears the elevator machine room has a sprinkler.

Electrical
The building is fed from a 1200 amp, three phase, 480 volt service fed from outdoor padmount transformer. The main 1200 amp distribution panelboard MDP was installed in 2001 and appears to be an increase from the original service to accommodate the Campus Center addition. Most other electrical panelboards in the gymnasium half of the building appear to be original equipment (1989). The Campus Center addition is newer and the panelboards and equipment appear to also be circa 2001. The Campus Center addition is fed from the 1200 amp MDP at 480 volts, and stepped down to 208 volts to serve most loads in addition. Recent renovation work within the Campus Center includes a new Mircom fire alarm system with voice evacuation (2007). In the older building many offices do not have many receptacles or data outlets. There are no smoke detectors in the older building, including at doors with door holders. There are no door holders at gym doors. Strobe lights for fire alarm are not all located per code. There is no cab lighting switch in elevator machine room. The elevator is dated to 1989. The kitchen appears to have been installed circa 2001. There appear to be a number of shunt trip breakers and downstream GFI devices.

Some egress lighting is on switches. Most lighting in both buildings is T8 fluorescent. Many fixtures appear to be 4T8 2x4 type troffer in kitchen and offices, with chain hung 4' 2T8 wrap fixtures in many corridors of older building. The gymnasium appears to have 6T5HO or 6T8 2x4 high bay fixtures. Some T12 lighting remains in mechanical rooms. At least in some showers LED fixtures used. It appears emergency lighting is provided throughout. Lighting in the kitchen may not be gasketed (collecting flies). Some CFL can lighting and accent lighting in dining area. Lights above pool look to be standard recessed troffers hung upside down; we are not sure if these lights are rated for that environment. There are older emergency battery packs for lighting in mechanical room adjacent to gym; unclear if operational however still plugged in.

The elevator machine room has a sprinkler head. Although the fire suppression system is addressed elsewhere its noted here because the elevator shafts (except pit) and machine rooms cannot have sprinkler heads so that the elevator shunt trip function can be removed.

Nutting Hall

Nutting Hall is a three story split level building consisting of dorm rooms, group bathrooms, and common spaces. There is a hot water and steam distribution tunnel, sub-basement below the building.

Mechanical

The central heating system for the building is a single pipe hot water system that is heated from the central campus steam distribution. There are redundant shell and tube steam to water heat exchangers in the mechanical room as well as two redundant hot water circulation pumps. The building is provided with multiple radiation loops along the perimeter of the dorm wings. There is a heat recovery heat pump located in the mechanical room and a second unit located within the steam chase. The heat recovery units are inoperable and there are two abandoned heat recovery storage tanks and pumps in the basement steam room.

Ventilation for the dorm rooms is provided through operable windows. There is dedicated exhaust and make up air for the group bathrooms located in the dorm areas, and exhaust for janitor closets. The exhaust and makeup air are provided through (2) heat recovery units located on the roof of the north and the south swings of the building. The northern wing is provided with a Semco 3000 cfm unit and the south wing a Semco 2000 cfm unit. These units recover heat from the leaving exhaust air which is used to preheat the incoming make up air. Make up air is then reheated by a hot water coil inside the building with a 3-way control valve, the valves are located in the third floor janitor closets.

The makeup air for the laundry room is a capped metal duct. Since there are less than 3 dryers in the room, make-up air is not required and the duct should be removed and the wall insulated.

There is no mechanical ventilation in the main electrical room.

All building controls are pneumatic. The main hot water coils are provided with 3-way control valves and the main hot water circulation pumps operate from motor starters. The pumps operate based upon the pump operational curve and do not modulate speed.

Plumbing

There is a 4” domestic water entrance located in the upper mechanical room. There did not appear to be a backflow preventer on the water entrance. Domestic hot water is heated by a brazed plate heat exchanger located in the basement mechanical room. The heated domestic water is then stored in (3) 175 gallon Rheem storage tanks. There is a Bradford White 120 gallon electric resistance tank type water heater in the mechanical room for summer use.

Fire Protection

The building is fully sprinklered by a wet system with the fire protection entrance and valves located in the basement steam mechanical space. The system appears to have code compliant alarm valves.

Electrical
The building is served by a 600 amp, three phase, 208 volt service. This service is fed via a high voltage dry type 300 kVA transformer located in the same room as the 12,470 volt switch. The 1200 amp 208 volt switchboard with 600 amp main bolted switch is located in a separate room. It appears that the electrical infrastructure is original equipment (1969). There are water pipes running directly over the 12,470 volt switch. The fire alarm system is fairly new. There are panelboards in closets at each floor that do not have adequate (36") clearance. There is inadequate clearance in front of Panel PP in the boiler room. There are carbon monoxide detectors in dorm corridors however not all dorm rooms are within 5' of devices. Strobe lighting is not within 15' of the end of corridors. Dorm rooms appear to have adequate receptacles, data, smoke and carbon monoxide detectors and fire alarm horns.

Most lighting fluorescent 2x2 and 2x4 troffer type, 4' wraps, with industrial or wraps in mechanical room type spaces. Most lighting appears to be on 24/7. There are few occupancy and no daylight sensors in building. There appears to be adequate emergency lighting. Corridor and stair lighting is on switches.

Fire Science Lab

The Fire Science Lab is a single story garage building attached to the *Construction lab*. The Fire Science Lab shares utilities with the *Construction Lab*.

Mechanical
The mechanical heating for the Fire Science lab is provided by horizontal unit heaters located at the ceiling of the space. The unit heaters each have a two way pneumatic control valve. The heating hot water is supplied from the mechanical room located in the *Construction Lab*.

There is a dedicated truck exhaust system with a pull down fume exhaust connection and an exhaust fan that terminates at the north side of the garage space.

Fire Protection
The building is fully sprinklered. The fire protection system is a wet system with the main system backflow preventer and zone valves located in the *Construction Lab.* It appears the system is provided with code compliant alarm valves.

Electrical
The Fire Science lab electric service is fed from the Construction Lab building. The fire alarm is relatively new. The panelboard has equipment and material stored in front of it which is a code violation. Most equipment and devices in this space are in relatively good condition.

Most lighting is fluorescent 4' industrial type ceiling mounted. There are few occupancy and no daylight sensors in building. Emergency lighting via EM ballasts within some ceiling fixtures

Construction Lab

The Construction Lab is a single story building that consists of open garage spaces, offices, locker room, bathrooms, and classrooms. It is attached to the *Fire Science lab*.

Mechanical

The central heating system for the building is a two pipe hot water system that is heated from the central campus steam distribution. There is a shell and tube steam to water heat exchanger in the mechanical room as well as redundant hot water circulation pumps. It appears one of these pumps serves the Construction Lab building and the other the Fire Science Lab. The mechanical heating for the Construction lab garage areas is provided by horizontal unit heaters located at the ceiling of the spaces. The classrooms, offices, and corridors are provided with cabinet unit heaters.

Ventilation of the garage is by a side wall propeller exhaust fan. There is a recirculating filtration unit that is hung in the ceiling space of the lab. Offices and classrooms are provided with operable windows and ceiling exhaust. The bathroom has a switch operated exhaust fan.

All building controls are pneumatic. The main hot water coils are provided with 3-way control valves and the main hot water circulation pumps operate from motor starters. The pumps operate based upon the pump operational curve and do not modulate speed.

Plumbing

Domestic water is heated by an AO Smith 30 gallon tank type electric resistance water heater. The water heater appears to be at the end of its expected life cycle. Urinals are provided with electronic flushometers and there is a tank type toilet that is not a low flow fixture.

Fire Protection

The building is fully sprinklered. The fire protection system is a wet system with the main system backflow preventer and zone valves located in the Construction Lab mechanical room.

Electrical

The building is served by a 400 amp, three phase 208 volt service. Main panel MDP has (4) 200 amp breakers feeding panelboards. It appears the equipment is dated 1989 and rated 10,000 AIC fault current. Panel PA has many GFI breakers and may be providing ground fault protection for circuits as needed. The fire alarm is relatively new.

Most lighting is fluorescent 4' industrial type fixtures. Many fluorescent lamps/bulbs do not operate. In the newer area there is T8 2x4 troffer type lighting. There are no

occupancy and no daylight sensors in building. It appears the emergency lighting is code compliant

Facilities Center

The Facilities Center is a two story building that consists of a workshop, paint room, key room, offices, and bathrooms. The Basement level consists of the facilities storage area, garage, and is connected to the central campus boiler plant.

Mechanical

The central boiler plant houses the three oil fired steam boilers for the campus. The boilers produce medium pressure steam (50-80 psi) to be distributed throughout the campus through a series of buried pipe, underground vaults, and some steam chases below or through buildings on the campus. Each building is equipped with a duplex condensate return pump to allow condensate to return to the central plant. There is a steam makeup air unit, and two intake hoods that provide combustion air to the boiler room. The garage door on the north side of the boiler room has also been fit up to allow for additional combustion/cooling air into the space.

The central heating system for the facilities building is a two pipe hot water system that is heated from the central campus steam distribution. There is a shell and tube steam to water heat exchanger in the boiler room as well as redundant hot water circulation pumps. There is a heat rejection interconnect from the bio digester generator facility that can provide heat to the building or provide heat to the bio digester enabling the digestion tank. There are multiple hot water terminal units located throughout the facility including unit heaters and finned tube radiators located along the perimeter of the building.

The wood shop area is equipped with a central exhaust fan for the equipment dust removal. There is a heat recovery unit that provides exhaust and make up air when the main hoods are enabled. The unit appears to have been supplied with a coil that was never connected to the hot water heating system. The bathrooms are exhausted through a dedicate roof top exhaust fan.

The central garage area is exhausted from a roof mounted exhaust fan. There is a hood located at the welding area with a a wall propeller exhaust fan.

All building controls are pneumatic. The main hot water coils are provided with 3-way control valves and the main hot water circulation pumps operate from motor starters. The pumps operate based upon the pump operational curve and do not modulate speed.

Plumbing

The domestic water main takeoff located in the boiler room is not provided with a backflow preventer. This water is connected directly to the boiler chemical feed and makeup water. There should be both a main system backflow preventer as well as a

backflow preventer added to the boiler system makeup water. Domestic water is heated by vertical steam to water heat exchanger.

Fire Protection
The building is partially sprinklered. The fire protection system is a wet system with the main system backflow preventer and zone valves located in the garage. The boiler room is not provided with a sprinkler system, however the main sprinkler service runs through the room in a 4" galvanized pipe.

Electrical
The building service is 400 amp, three phase, 208 volts. The main equipment is located in the Boiler room. There are different ages for panelboards and switchgear however the oldest appears to be Westinghouse and is most likely original equipment from (1985?). A 200 amp transfer switch and generator were provided in 2002. The 400 amp MDP panel is dated 2009. Equipment appears to all be rated 10,000 AIC. Most of the disconnect and motor starters are old. There does not appear to be any fire alarm. The east end of the building appears to be slightly newer and is sprinklered. Most offices on upper level are provided with few receptacles and data outlets. Almost all receptacles are full with some serving extension cords, although office 204 and 205 appear to have an adequate quantity of receptacles.

Most of the lighting is fluorescent 4' 2T8 industrial type laid out in rows. Some lamps are not operating. In the office area corridor and west garage some ceiling fixtures have been retrofit with LED "tubes". The office area on the upper level is using parabolic lights that provide very inefficient lighting. There are no occupancy and no daylight sensors in building. There appears to be some emergency lighting although the EM light in room 211 not operational. There is a lack of exit signs between rooms 211 to corridor.

There is a paint storage room where it appears painting occurs. It is not set up as hazardous location per NEC Art 500.

Red Schoolhouse

Red Schoolhouse is a two story building with an unfinished basement.

Mechanical
The building is heated by a 200,000 btu/hr wood pellet boiler located in the basement. The pellet boiler conditions a buffer tank adjacent to the boiler. The boiler is provided with wood pellet storage with approximately 13 tons of storage capacity, located in the south east corner of the basement. Pellets are fed to the storage container through an external feed tube and hopper. The pellet boiler is the primary heat for the building with a redundant and supplemental oil fired cast iron boiler located in the adjacent mechanical room that is piped in series with the pellet system. The oil boiler appears to operate when the required hot water supply temperature to the building is less than 120 degrees. There are 5 hot water zones throughout the building. These zones are fed from 5 circulator pumps located on the return header to the oil fired boiler. Classrooms and perimeter spaces are heated by finned tube radiators located on the exterior walls. The entryway lobby is heated by a cabinet unit heater. Each zone control circulator, as well

as the domestic hot water heating circulator, are controlled by Taco relay controls located in the basement.

There is no mechanical ventilation provided for the building. Ventilation for offices and classrooms is through the use of operable windows. The two group bathrooms located on the first floor of the building are provided with switch operated wall exhaust fans. There is no exhaust for the janitor closet adjacent to the bathrooms.

Plumbing

Domestic water is heated by a Superstor indirect storage tank connected to the boiler system. A dedicated Taco circulator pump is enabled upon a call for heating of the water. There is a central Leonard mixing valve located in the boiler room. There is no domestic hot water recirculation system.

Fire Protection

The building is fully sprinklered. The fire protection system is a combination of wet and dry systems with the dry valve and main entrance located in the basement.

Electrical

The building is service is 200 amp, three phase, 120/208 volts fed from utility pole mount transformers. The main equipment is located in an electric room in the basement. Main 200 amp MDP panel appears to be in good condition; it is probable this was installed when the elevator was installed (2004). The elevator appears to be in good condition, although whether the shunt trip is still in service needs to be determined because the machine room is still sprinklered. The fire alarm is dated 2001. The fire alarm is a zoned system and appears to be in good condition. The fire alarm tie to elevator needs to be verified. MDP panel feeds an older panelboard in basement; most likely this second panel was the original single phase 120/240 volt service entrance. This second panel feeds most branch circuits in building including the panelboard on the second floor.

Most lighting is fluorescent 2T8 wrap type in basement and restrooms. In classrooms and main lobby direct/indirect pendant fixtures are laid out in rows. There are no occupancy and no daylight sensors in building. There appears to be some emergency lighting

Admissions Allen House

Admissions Allen House is a two story building with an unfinished basement in the historic wing of the building.

Mechanical

The building is heated by a 200,000 btu/hr oil fired boiler located in the basement. The boiler is provided with a dedicated circulator and there are redundant variable volume circulators that distribute hot water to terminal units throughout the building. Perimeter zones throughout the building are conditioned by finned tube radiators located on the exterior walls of the building. The conference room is conditioned with a dedicated 4 ton Mitsubishi H2 heat pump unit. The outdoor unit is located on the north side of the

building and the indoor heat pump is a ducted unit located in the basement of the older part of the building.

The conference room is ventilated by a RenewAire residential type ERV located over the ceiling of the storage spaces. The ERV is provided with a dedicated hot water coil for conditioning of the air. The balance of the building is provided with operable windows and a whole house exhaust fan that exhausts into the attic space.

Plumbing

There is a ¾" domestic water main that taps off of the 4" fire protection entrance in the basement. There is a reduced pressure zone backflow preventer on the domestic water entrance. Domestic water is heated by an electric resistance tank type water heater located in the basement of the building. Lavatories and toilets in the building appear to have been replaced during renovation and are low flow fixtures. There is no domestic recirculation system.

Fire Protection

The building is completely sprinklered using a galvanized dry pipe sprinkler system. There is a compressor located at the dry valve location. The system appears to have a code compliant alarm valve.

Electrical

The building was recently renovated (2012). There is a new fire alarm system. Existing 200 amp, single phase, 120/240 volt service entrance (via overhead cable) appears to have been installed in 1997 however (at least most) electrical within building appears to have been upgraded during 2012 renovation.

All lighting is fluorescent type; the majority 2T8 direct/indirect type. There are occupancy sensors in rooms however not corridors. Emergency lighting is via wall mount fixtures; most use incandescent lamps.

There is a LILO type elevator.

Langevin House

Langevin House is a two story historic wood structure building with an unfinished basement. The two story house is connected a newer single story conference room and garage constructed slab on grade.

Mechanical

The historic house building is heated by a Peerless 151,000 btu/hr oil fired boiler located in the basement. A 275 gallon oil tank for the boiler is located in the basement adjacent to the boiler. The boiler serves (7) heating zones throughout the historic house that distribute hot water to perimeter finned tube and to two unit heaters located in the basement. Each zone is provided with a dedicated Taco circulator pump and mercury thermostat. Combustion air for the boiler is brought in from the outdoors through a duct in the basement and vented through the chimney.

The newer single story spaces are served by a second Peerless 90,000 btu/hr oil boiler located in a mechanical room on the north side of the building. Combustion air for the boiler is brought in through two intake louvers in the mechanical room. The linkage to the control damper for the lower intake louver was disconnected and closed. There are (3) separate heating zones each provided with a dedicated Taco circulator pump. There is also a 275 gallon oil tank located inside the mechanical room. The conference room is ventilated and conditioned by a Trane air handler located in the adjacent mechanical room. The AHU also supplies air to the entry vestibule. The air handler is provided with a hot water heating coil with a 3-way control valve, and a DX cooling coil. The 5 ton remote condensing unit for the cooling coil is located to the north of the building and the refrigerant lines are buried. Ventilation air is brought in through a louver on the north side of the mechanical room and ducted into the return on the air handler. There is a control damper on the ventilation duct. The conference room is also heated via perimeter finned tube radiators located on the perimeter of the room.

The janitor's closet located in the conference room is provided with a dedicated exhaust fan that is enabled by the light switch in the closet. The bathrooms are provided with switch enabled bathroom exhaust fans.

Plumbing

The well pressure tank and flow switch are located in the north mechanical room. Domestic water for the historic house is heated by a 6 gallon Bradford White electric resistance tank type water heater located in the basement of the building. Domestic water for the newer portion of the building is heated by a 6 gallon Rheem electric resistance tank type water heater located in the basement of the building. There did not appear to be a mixing valve provided for either of the water heaters. There is no domestic hot water recirculation provided. Lavatories and toilets appear to be in good condition and relatively new. It appears the trip lever on the toilet for the ADA accessible bathroom is on the wrong side of the toilet to comply with ADA.

Fire Protection

The older area of the building is completely sprinklered with a wet fire protection system and provided with a code compliant alarm valve. The fire protection system is supplied water from a 550 gallon plastic fire storage tank located in the basement of the building. There is a single base mounted fire protection pump with a check valve and flow switch mounted to a concrete footing adjacent to the fire tank.

Electrical

The building service is 200 amp, three phase, 208 volt service installed circa 1994. The service feeds two downstream panelboards; (1) 100 amp three phase serving north (conference room) half of building; (1) 100 amp single phase serving "house" portion. There appears to be 2 fire alarm systems; one for north half (FCI system dated 1994) and one for "house" (FCI system dated 1998). It appears the "house" circuiting is similar in age to the fire alarm system (renovation work done circa 1998).

Some renovation work occurred in 2001 in the conference room portion of building. There are a significant number of PL fluorescent recessed cans and 2x2 2T8 parabolic troffer fixtures in conference room. Many fixtures in the "house" portion of building are

basic porcelain type fixture with CFL screw in bulbs. It appears the entire building has a code compliant quantity of emergency lighting via wall mount fixtures. There are some occupancy sensors throughout entire building; some are old though. The exterior building mounted lighting is a combination of HID and incandescent type wall and flood light type fixtures; some with occupancy sensors.

VTC Farm Complex

The VTC Farm complex is a mix of farm structures. The main milking parlor barn is provided with a break room, locker room, offices, and bathroom. There is a sugaring structure and various barn/garage spaces.

Mechanical

The main milking parlor barn is heated by a Peerless 180,000 btu/hr oil fired boiler. There are two main heating zone circulators for the building. There is no combustion air intake for the boiler through the exterior wall. It appears the bathroom door is propped open to provide combustion air for the boiler. Spaces are conditioned by unit heaters and finned tube radiators located throughout the spaces.

There is no ventilation provided in the milking parlor offices, locker room, or classroom area. There is no exhaust hood provided over the electric cooking range.

The bathroom is provided with a wall mounted exhaust fan that was not operational at the time of the site visit.

Plumbing

Domestic water is heated by a Rinnai 199,000 btu/hr propane fired instantaneous water heater and stored in two 120 gallon electric resistance tanks that appear to be inoperable and beyond their expected life cycle. The exhaust from the Rinnai heater is located directly above the regulators for three propane tanks. Supplemental domestic water heating is provided by a roof mounted solar hot water system with storage tank. There is an additional Bradford White 119 gallon electric resistance hot water tank for the wash down area. The waste pipe in the milk barn is multiple materials and is cast iron and copper.

Fire Protection

There is no fire protection system for any of the farm structures.

Electrical

The entire facility is fed via a 800 amp, three phase, 120/240 volts “open delta” service fed from utility pole mount transformers. The service entrance rated automatic transfer switch with 800 amp main breaker and the main distribution panelboard are located outdoors. The feed from the pole goes through the pad mounted transfer switch main breaker. The transfer switch feeds the 1200 amp outdoor panelboard. The outdoor generator size is 80 kW. All this exterior equipment appears to be only several years

old. Most of the breakers in the 1200 amp panelboard appear to be rated much higher than the panels the breakers feed. It is unclear how the generator operates with 120/240 open delta service.

All the panelboards within the buildings, barns, etc. are much older than the main service equipment and in poor shape. We could not look into the Fire Tower building or Wind Turbine, although it appears the service size to Fire Tower is 200 amps, single phase.

The feed to the main building appears to run via a 400 amp double throw disconnect in back room. This disconnect feeds other panelboards within building. The panelboards are old and corrosion is starting to occur. The kitchenette does not appear to have adequate receptacles or GFI protection. There is a minimal number of receptacles throughout. The fire alarm appears to have been installed in 2017.
Most of the lighting in the main building is old T8 fluorescent wraps, “vapor-tites” (located in milking and shower rooms) and 2x4 troffers. There appears to be emergency lighting.

The Horse Barn is fed via a 100 amp, single phase, disconnect on outside wall and load center indoors. The building has minimal loads. The loadcenter is old and starting to corrode. Wiring is in conduit. The lighting is LED. There is no GFI protection for receptacles.

The Sugaring Barn is fed via a 100 amp, single phase load center. The loadcenter is old and starting to corrode. The evaporator and lighting appears to be newer. Wiring is in conduit.

The Hay Barn is fed via an outdoor 100 amp, three phase load center. The loadcenter is old. There are minimal loads.

Infrastructure Recommendations:

Life Safety and Code Compliance:

General: Much of the insulation on steam equipment appears to possibly be asbestos containing material. We recommend testing of materials
Mechanical, Plumbing, and Fire Protection:

Administrative Center

1. We recommend the installation of a reduced pressure zone backflow preventer be installed on the water supply to the server room heat pump to prevent contamination from the waste to the potable water. The waste connection to the waste system should be through an indirect drain and not a hard connection to the waste pipe. As this is not a typical installation and results in excessive domestic water use we would recommend the removal of the water source heat pump and replacement with an air source heat pump with low ambient cooling capabilities.
2. The return air for the air handler/ventilation machine uses the egress corridors as a return plenum. This is not consistent with current mechanical code. It is

recommended to fully duct the system, or install smoke dampers in the pass-through ducts between egress corridors and the central atrium space.
3. We recommend installing drain pans beneath water piping that runs over server/telcom racks located in the basement or to reroute the piping so that it is no longer over the top of the rack equipment.
4. We recommend the installation of a reduced pressure zone backflow preventer on the domestic water service.
5. We recommend adding exhaust to the printer room.

Old Dorm

1. We recommend investigating if the bathroom exhaust for the lower level bathrooms in the occupied areas is operational at all times and if not, enable the exhaust fan during occupied hours through a simple controller.

Conant Hall

1. At the time of the first site visit there was a significant amount of water on the floor of the water heater room and into the high voltage electrical equipment area. It appeared this was due to a float on a sump pump being stuck in position. We recommend the addition of a DDC or audible alarm to this sump pump to avoid water accumulation in the main electric entrance to the building.

Judd Hall/Bookstore

1. We recommend adding exhaust in the printer room located in the office suite on the east side of the building as recommended per ASHRAE.

Morrill Hall

1. There is an uninsulated steam heat exchanger located directly above the electric panel in the mechanical room. This heat exchanger should be insulated and a drain pan provided over the top of the panel.
2. The main steam strainer is missing a cap and is leaking onto the mechanical room floor. The cap should be replaced.
3. It is recommended that the wood shop be provided with ventilation air and the shop exhaust unit be provided with a fine particulate filter.
4. The laboratory storage spaces are required to be provided with exhaust per ASHRAE.
5. The janitor closet adjacent to the mechanical room should have exhaust per ASHRAE.

Robert Clarke Hall

No Life Safety items noted.

Green Hall

1. We recommend the addition of exhaust ventilation of the brick storage closet in the civil lab back of house area.
2. There did not appear to be adequate exhaust capture hoods over some cement mixing locations in the lab. We suggest the implementation of a mobile exhaust unit, or installation of permanent hoods at all locations where mixing is occurring.

3. The exhaust fan on the east side of the building appeared to be off at the time of the site visit. As this fan provides exhaust for janitor closets, the fan should be repaired.
4. Add ventilation to basement mechanical space storage room.

Greenhouse
No Life Safety items noted.

Hartness Library
No Life Safety items noted.

Morey Residence Hall and Dining Hall
1. The kitchen exhaust for the main kitchen hood appears to be galvanized duct. Per NFPA 96 this ductwork should be welded stainless steel or heavy gauge carbon steel ductwork. We recommend reviewing this installation and installing ductwork and fire rated insulation that meets the requirements of NFPA 96. Because of the location of the kitchen hood it would be most cost effective to exhaust at the roof level of the kitchen. It is also recommended that if this work is occurring that a new variable speed exhaust system be installed and sized based on the actual equipment under the hood.
2. The building is operating under an extremely negative pressure. This operation can cause condensation within the building envelope and damage the structure of the building. It also can create mold/mildew growth within enclosed spaces which compromise building air quality. We recommend balancing of the kitchen air systems to create a neutral pressure in the space.
3. Verify that the exhaust hood capacities meet the exhaust requirements for the equipment located beneath the hoods and replace hoods as required. Predesigned hoods to the specific equipment typically reduce the required exhaust from the code requirement. It also would be beneficial to replace the island style hood with two peninsula type hoods as this would greatly reduce the exhaust requirements.

Keenan Residence Hall
1. There did not appear to be an ansul fire protection system in the ADA dorm room. It is recommended to add a fire protection system for the range.

President's House
1. The bathroom exhaust fan terminations in the attic should be terminated to the exterior of the building with backdraft dampers. The moist exhaust air from the bathroom exhaust fans can create mold and mildew conditions in the attic, and/or cause structural damage to the roof framing over time.
2. The day lighted drain in the garage is currently filled with stagnant water. We recommend this pipe be cleaned and the blockage removed to prevent bacterial growth in the garage.
3. A domestic hot water tempering valve should be installed on the domestic hot water supply.

SHAPE fitness Center and Campus Center

1. If the shunt trip is to be removed from the elevator machine room, the sprinkler will also need to be removed.

Nutting Residence Hall

1. There is no ventilation provided in the Janitor office in the basement level. We recommend the addition of ventilation for this space.
2. The exhaust grilles in much of the building appear to be coated with dust. It is recommended that the exhaust ducts, and HRV heat exchanger be examined and cleaned. We have seen in some instances at other facilities this can reduce exhaust airflow by as much as 25 percent or more.
3. We recommend the installation of a domestic water low pressure zone backflow preventer.

Fire Science Lab

No Life Safety items noted.

Construction Lab

No Life Safety items noted.

Facilities Center

1. The paint room exhaust is located directly above the paint table. This exhaust location draws paint fumes through the breathable range of the user. We recommend the use of a linear slot exhaust hood along the length of the table with the exhaust at the height of the table.
2. We recommend extending the sprinkler system to cover the entirety of the building.

Red Schoolhouse

1. There does not appear to be any exhaust for the janitor's closet on the first floor. We recommend adding an exhaust fan for this space.
2. We recommend removing the sprinkler from the elevator machine room.

Admissions Allen House

No Life Safety items noted.

Langevin House

1. It is recommended that proper domestic hot water tempering valves be installed for both water heaters.
2. It is recommended that a secondary form of containment be provided below the oil tank located in the basement.

Barn Complex

1. It is recommended that the propane tanks or water heater vent for the milking barn be relocated. The regulator for the tanks is required to be 5' (minimum) away from the combustion vent/intake of the unit per NFPA.
2. We recommend adding mechanical combustion air intake to the existing boiler room from outside of the building.
3. We recommend that a range hood be installed over the kitchen range and provided with an ansul fire suppression system.

4. We recommend that exhaust air be provided for the locker rooms and offices.

Electrical:

Administrative Center

1. Switching of lighting in corridors should be replaced with keyed switches per NFPA 101 7.8.1.2.
2. Fire alarm system not per code; spacing of horn/strobes inadequate and door holders need be used instead of wedges at corridor or stairwell doors. Add smoke detectors at doors for door holder release. System also original install dating to 1986 and most likely does not meet current NFPA requirements.
3. Panel MDP is not located per NEC 110.26. To be either relocated or the space in front of panelboard needs to be increased.
4. It is highly likely the Panel MDP and possibly panelboards fed from MDP are not rated for the available fault current. Perform fault current analysis and make revisions as required.
5. Elevator installation appears to not be code compliant. May not be tied to fire alarm. Remove shunt trip if still activated. Provide cab lighting switch for elevator.
6. NEC 2017 requires additional receptacles in offices. Additional receptacles should be added.
7. Does not appear to have adequate or working emergency lighting in some locations. Provide additional emergency lighting.

Old Dorm

1. Switching of lighting in corridors should be replaced with keyed switches, with lights per NFPA 101 7.8.1.2.
2. Elevator installation appears to not be code compliant. May not be tied to fire alarm. Remove shunt trip if still activated. Provide cab lighting switch for elevator.
3. Verify if fire alarm horns in dorm rooms are “low frequency” type. Provide if needed.
4. Add fire alarm horns or strobes in several toilet/shower rooms.
5. Does not appear to have adequate or working emergency lighting in some locations. Provide additional emergency lighting.

Conant Hall

1. Switching of lighting in corridors should be replaced with keyed switches per NFPA 101 7.8.1.2.
2. The existing electrical infrastructure is very old and should be replaced. This includes panelboard, circuiting, disconnect equipment and devices such as receptacles.
3. Elevator installation appears to not be code compliant. May not be tied to fire alarm. Remove shunt trip if still activated. Provide cab lighting switch for elevator.
4. Existing fire alarm system should be upgraded or replaced.
5. Provide new emergency lighting throughout and remove old central battery system.

Judd Hall/Bookstore

1. Switching of lighting in corridors should be replaced with keyed switches per NFPA 101 7.8.1.2.
2. Verify grounding as a remote building to the service entrance from Conant is correct.
3. Coordinate with local code official that clearance of exit from electric room is acceptable.

Morrill Hall

1. Switching of lighting in corridors should be replaced with keyed switches per NFPA 101 7.8.1.2.
2. Fire alarm system spacing of horn/strobes may need to be revised. If proposing to keep corridor doors open, do not use wedges. Provide door holders with smoke detectors for door holder release.
3. Elevator installation appears to not be code compliant. May not be tied to fire alarm. Remove shunt trip if still activated. Provide cab lighting switch for elevator.
4. Does not appear to have adequate or working emergency lighting in some locations; particularly stairwells. Provide additional emergency lighting.
5. Provide disconnecting means for Panel EP2.

Robert Clarke Hall

1. Fire alarm system not per code; spacing of horn/strobes inadequate and door holders need be used instead of wedges at corridor or stairwell doors. Add smoke detectors at doors for door holder release.
2. Main electric room door should swing out and be provided with panic bar.

Green Hall

1. Switching of lighting in corridors should be replaced with keyed switches per NFPA 101 7.8.1.2.
2. Fire alarm system not per code; spacing of horn/strobes inadequate and door holders need be used instead of wedges at corridor or stairwell doors. Add smoke detectors at doors for door holder release.
3. It is highly likely the Panel MDP and possibly panelboards fed from MDP are not rated for the available fault current. Perform fault current analysis and make revisions as required.
4. The existing electrical infrastructure is very old and should be replaced. This includes panelboard, circuiting, disconnect equipment and devices such as receptacles.
5. Electric room egress not to code per NEC 110.26; no panic bar, no multiple exits. Room needs to be upgraded to accommodate main switchgear.
6. Provide GFI receptacles in green house and mechanical room type spaces.

Hartness Library

1. No obvious violations.

Morey Residence Hall and Dining Hall

1. Switching of lighting in corridors should be replaced with keyed switches, with lights per NFPA 101 7.8.1.2.

2. Fire alarm system not per code; spacing of horn/strobes inadequate and door holders need be used instead of wedges at corridor or stairwell doors. Add smoke detectors at doors for door holder release.
3. It is highly likely the Panel MDP and possibly panelboards fed from MDP are not rated for the available fault current. Perform fault current analysis and make revisions as required.
4. Much of the existing electrical infrastructure is very old and should be replaced. This includes panelboard, circuiting, disconnect equipment and devices such as receptacles.
5. Electric room egress not to code per NEC 110.26; no panic bar, no multiple exits. New electrical gear would need to be located in different space due to size of room. The main switchgear does not have code compliant clearance or access.
6. Some equipment in “crawl” space in basement does not meet code height clearance requirements and needs to be relocated.
7. Replace any emergency lighting fed via the central battery in kitchen area with either life safety system powered lighting or battery powered emergency lighting units. Further investigate and test remaining systems to verify code compliance.

Keenan Residence Hall

1. Switching of lighting in corridors should be replaced with keyed switches, with lights per NFPA 101 7.8.1.2.
2. Fire alarm system not per code; spacing of horn/strobes inadequate and door holders need be used instead of wedges at corridor or stairwell doors. Add smoke detectors at doors for door holder release.
3. Verify if fire alarm horns in dorm rooms are “low frequency” type. Provide if needed.
4. It is highly likely the Panel MDP and possibly panelboards fed from MDP are not rated for the available fault current. Perform fault current analysis and make revisions as required.
5. The existing electrical infrastructure is very old and should be replaced. This includes panelboard, circuiting, disconnect equipment and devices such as receptacles.
6. Electric room egress not to code per NEC 110.26; no panic bar, no multiple exits. The main switchgear does not have code compliant clearance or access.
7. Provide GFI receptacles in wet and mechanical room type spaces.
8. Emergency lighting system is most likely not code compliant. Recommend verifying if transfer switch strictly serves emergency lighting. Alternative would be to provide battery powered emergency lighting throughout building.

President’s House

1. “Single-family owner occupied dwellings” are exempt are exempt from the NEC in Vermont, however it is assumed the residence should be NEC code compliant for a dwelling.
2. The layout of receptacles throughout most of the house does not meet requirements of NEC 210.52.
3. There are almost no GFI or AFCI protected devices as required by NEC 210.8 and 210.12 respectively. The latest NEC codes require both in almost all locations within a dwelling.

4. The bedrooms require smoke detectors with “low frequency” audible alarm, providing 75 dB at the “pillow”.
5. If any bedrooms, or the house in general, are required to be ADA compliant, at a minimum additional strobe lights would be required.
6. Replace service entrance disconnect and panelboards if fusing in main 400 amp disconnect greater than 200 amps.

SHAPE fitness Center and Campus Center

1. Switching of lighting in corridors should be replaced with keyed switches, with lights per NFPA 101 7.8.1.2.
2. Fire alarm system not per code; spacing of horn/strobes inadequate and door holders need be used instead of wedges at corridor or stairwell doors. Add smoke detectors at doors for door holder release.
3. It is highly likely the Panel MDP and possibly panelboards fed from MDP are not rated for the available fault current. Perform fault current analysis and make revisions as required.
4. Elevator installation appears to not be code compliant. May not be tied to fire alarm. Remove shunt trip if still activated. Provide cab lighting switch for elevator.
5. Verify if old emergency lighting battery system still in operation. Replace any emergency lighting fed via the central battery with battery powered emergency lighting units.
6. Does not appear to have adequate or working emergency lighting in some locations; particularly stairwells. Provide additional emergency lighting.

Nutting Residence Hall

1. Switching of lighting in corridors should be replaced with keyed switches, with lights per NFPA 101 7.8.1.2.
2. Fire alarm system not per code; spacing of horn/strobes inadequate and door holders need be used instead of wedges at corridor or stairwell doors. Add smoke detectors at doors for door holder release.
3. It is highly likely the Panel MDP and possibly panelboards fed from MDP are not rated for the available fault current. Perform fault current analysis and make revisions as required.
4. The existing electrical infrastructure is very old and should be replaced. This includes panelboard, circuiting, disconnect equipment and devices such as receptacles.
5. Move high voltage transformer and switch outdoors due to other utilities in this room.
6. Electric room egress not to code per NEC 110.26; no panic bar, no multiple exits.

Fire Science Lab

1. No obvious violations however should remove all equipment blocking panelboard.

Construction Lab

1. Switching of lighting in corridors should be replaced with keyed switches, with lights per NFPA 101 7.8.1.2.
2. Verify GFI protection for receptacles in maintenance room type spaces.

Facilities Center

1. Switching of lighting in corridors should be replaced with keyed switchesper NFPA 101 7.8.1.2.
2. Provide additional emergency and exit lighting for full coverage.
3. Paint storage area may be required to be updated to meet NEC Art 500 requirements for hazardous location.
4. No remote alarm for sprinkler system.
5. Boiler plant area may require carbon monoxide detection and sprinkler and therefore require fire alarm system.
6. It is highly likely the Panel MDP and possibly panelboards fed from MDP are not rated for the available fault current. Perform fault current analysis and make revisions as required.
7. GFI protection for receptacles in maintenance type spaces.
8. Replacement of panelboards due to inadequate short circuit ratings (at service entrance location).

Red Schoolhouse

1. Switching of lighting in corridors should be replaced with keyed switches per NFPA 101 7.8.1.2.
2. Elevator installation appears to not be code compliant. May not be tied to fire alarm. Remove shunt trip if still activated.

Admissions Allen House

1. Switching of lighting in corridors should be replaced with keyed switches per NFPA 101 7.8.1.2.

Langevin House

1. Switching of lighting in corridors should be replaced with keyed switches per NFPA 101 7.8.1.2.

VTC Farm

1. Farms are exempt from the National Electrical Code in Vermont, however there are what appear to be less than optimal electrical conditions throughout. Recommendations are listed in the System Upgrades or Deferred Maintenance section. The fire alarm system for main building does appear to be code compliant. No other buildings require fire alarm.

System Upgrades or Deferred Maintenance:

General: In many cases backflow preventers on water entrances do not have drains piped to the outdoors or to floor drains. Typically this is present in locations where the water entrance is in a basement mechanical space below the building waste exit. Most of these rooms are provided with small sump pits and pumps. However, most pumps appear undersized to handle a backflow preventer failure. In these locations we recommend installing new sump pumps and providing a water sensor alarm. The failure of a backflow preventer without a means of draining can result in flooding of the space and possible building damage.

Mechanical:
General: Most buildings on campus utilize pneumatic control systems. It is recommended as upgrades or work completed on equipment occurs that digital controls be implemented. Digital controls allow for the owner/operator to receive information from the system regarding operational status as well as provide emailed alarms when equipment failures occur. The current systems can have failures of equipment components that could go unchecked without a regular maintenance inspection.

Administrative Center

1. The enclosure around the air handling unit does not allow for proper maintenance access to the unit and filters. We suggest increasing the size of the enclosure to allow for proper access and that the filters be replaced, as at the time of the visit they were not properly installed and appeared damaged.

Old Dorm

1. The domestic water pump for heating domestic water by the steam heat exchanger was decommissioned at the time of the site visit. This pump should be re-enabled as currently domestic hot water is generated by the electric resistance unit.

Conant Hall

1. We would recommend the replacement of the HVAC system with a central energy recovery ventilation system at the time of building renovation. The unit ventilators appear to be at the end of their life cycle and are an inefficient system for ventilating the building.
2. The AV equipment room at the main first floor lecture hall was very hot due to the equipment running. We suggest adding exhaust to this space to provide cooling for the equipment.

Judd Hall/Bookstore

1. The control of the heat in the west end offices may conflict with the cooling requirements of the zone. Occupants indicated malfunction of the heating thermostats. We recommend the replacement of the existing thermostats with programmable thermostats.

Morrill Hall

1. There are multiple uninsulated sections of piping and equipment within the mechanical room. We recommend that the insulation be repaired or replaced to provide continuous barrier. This will reduce condensation and loss of energy from the central steam system.
2. We recommend replacing the R-22 refrigeration Leibert system for the IT server room with a non-ozone depleting/low greenhouse gas coefficient refrigerant.

Robert Clarke Hall

1. No obvious issues.

Green Hall

1. Recommend replacing the roof top air handler systems with energy recovery ventilation systems. The units appear to be at the end of their useful lfe cycle.

2. Recommend replacing the decommissioned hot water circulator pump with a variable speed pump to provide redundancy for the system as well as possible energy savings.

Hartness Library

1. No obvious issues.

Morey Residence Hall and Dining Hall

1. We recommend the replacement of the exhaust systems for the kitchen with variable volume kitchen exhaust control. This would coincide with balancing and variable volume make up air control for the kitchen area.
2. We recommend providing conditioned make up air for the laundry room area.

Keenan Residence Hall

1. We recommend implementation of heat recovery ventilation make-up air system be provided for the dorm bathrooms and janitors closets when Keenan Hall is planned to be renovated. The current exhaust system could be creating a negative pressure on the building and cause air quality problems.
2. We recommend replacing the existing plumbing fixtures with new, water efficient plumbing fixtures in the bathrooms that have not undergone bathroom renovations.

President's House

1. We recommend that all thermostats be replaced with programmable type thermostats.
2. All hot water piping and domestic water piping should be insulated to meet all energy efficiency requirements.
3. We recommend the replacement of the kitchen sink faucet.
4. We recommend the implementation of a permanent ducted dehumidifier for the basement area so that dehumidification occurs evenly throughout the basement space.
5. We recommend the removal of all electric resistance heating.

SHAPE fitness Center and Campus Center

1. The existing pool HVAC equipment is beyond its service life, we recommend replacement with an integrated heat pump/pool heating based dehumidification system that incorporates integral energy recovery ventilation and economizer operation. This is the most efficient method of supporting the pool operations.

Nutting Residence Hall

1. We recommend replacing existing plumbing fixtures and piping based on the age of the system.
2. We recommend the replacement of the air handling system serving the central commons areas of Nutting as it is beyond its expected life cycle.

Fire Science Lab

1. No obvious concerns.

Construction Lab

1. We recommend the implementation of energy recovery ventilation for the locker rooms, offices and classrooms and that the unit heater outside air control dampers be removed and insulated.

Facilities Center

1. We noted that the heat rejection pump for recovery of heat from the generator jacket appeared to not be running at the time of the visit. We recommend that this system be used for heating of the building when waste heat is available.

Red Schoolhouse

1. The bathroom exhaust fans are switch operated. We recommend operation of the fans by occupancy sensors.

Admissions Allen House

1. No obvious concerns.

Langevin House

1. No obvious concerns.

VTC Farm

1. We recommend the removal of the two electric resistance tank water heaters. They appear to be at the end of their life cycle and are prone to tank failure.
2. We recommend the replacement of the plumbing fixtures in the main milking barn as most faucets were found to be leaking and plumbing fixtures and piping appears to be tired and possibly contain lead based solder.

Electrical:

General Note: In essentially every building, lighting is fluorescent type. Some buildings the condition of fixtures is good while some others are in extremely poor condition. As part of system upgrades or deferred maintenance, lighting could be added. However all recommended lighting changes not associated with emergency egress lighting, which is included under the Life Safety portion of this report, or where the issue is strictly a maintenance issue, is included under the Energy Efficiency Measures portion of the Electrical Systems report.

In addition, many of the building have electrical infrastructures at or above 50 years old. These should be prepared for replacement whether there are code violations or not.

Administrative Center

1. Age of fire alarm system makes it likely the system should be replaced. Noted in Life Safety and Code Compliance section.

Old Dorm

1. In some locations, prepare to replace portions of existing electrical infrastructure including panelboards, circuits and device. Can be done as part of architectural renovation work.

Conant Hall

1. As noted in code concerns the electrical infrastructure is old and unsafe. It is recommended the entire electrical infrastructure be upgraded. Device replacement could occur as part of architectural renovation work.

Judd Hall/Bookstore

1. In office area, prepare to replace circuiting and devices as part of architectural renovation work.
2. In addition to saving energy, replacing the HID high-bay fixtures in the tennis court area with LED high-bay fixtures would reduce maintenance associated with replacing lamps in hard to access fixtures.

Morrill Hall

1. Investigate replacing indoor vault transformers with outdoor padmount transformer.
2. Downstream panelboards with this building, particularly the old portion, should be replaced.

Robert Clarke Hall

1. No obvious issues.

Green Hall

1. As noted in code concerns the electrical infrastructure is old and unsafe. It is recommended the entire electrical infrastructure be upgraded.

Hartness Library

1. No obvious issues.

Morey Residence Hall and Dining Hall

1. As noted in code concerns the electrical infrastructure is old and unsafe. It is recommended the entire electrical infrastructure be upgraded.
2. Replace any of the older central emergency lighting battery systems with either life safety powered (generator) lighting or battery powered emergency lighting. This is regardless of whether the existing systems are acceptable to local authority having jurisdiction.

Keenan Residence Hall

1. As noted in code concerns the electrical infrastructure is old and unsafe. It is recommended the entire electrical infrastructure be upgraded.

President's House

1. Even if the main disconnect has 200 amp fuses, the fact there are no GFI or AFCI breakers within building would justify replacing main disconnect and panelboards with a code compliant panelboard.
2. Remove exterior pole lights.

SHAPE fitness Center and Campus Center

1. Portions of the electrical infrastructure, particularly in the gym portion of building, are old and potentially unsafe. It is recommended the electrical infrastructure be upgraded.
2. Replace any of the older central emergency lighting battery systems with new battery powered emergency lighting. This is regardless of whether the existing systems are acceptable to local authority having jurisdiction.
3. In addition to saving energy, replacing the T8 high-bay fixtures in the gymnasium and pool with LED high-bay fixtures would reduce maintenance associated with replacing lamps in hard to access fixtures. The fixtures in the pool should also be natatorium rated to reduce corrosion.

Nutting Residence Hall

1. As noted in code concerns the electrical infrastructure is old and unsafe. It is recommended the entire electrical infrastructure be upgraded.

Fire Science Lab

1. Provide accessible test switch to be able to test emergency ballasts in light fixture. This could be done as part of an LED lighting retrofit.
2. In addition to saving energy, replacing the high-bay fixtures in the garage area with LED high-bay fixtures would reduce maintenance associated with replacing lamps in hard to access fixtures.

Construction Lab

1. There are a few older panelboards however none in need of significant maintenance. Over time these panelboards should be replaced.

Facilities Center

1. Portions of the electrical infrastructure are old and potentially unsafe. It is recommended the electrical infrastructure be upgraded.

Red Schoolhouse

1. Over time the single phase panelboard in this building should be replaced.

Admissions Allen House

1. No obvious concerns.

Langevin House

1. Both of the fire alarm panels are over 20 years old. Recommend they be replaced with a single fire alarm panel.
2. There are a number of ceiling fixtures with CFL screw in lamps. These are exposed and should be provided with some form of protection to prevent damages the bulbs.

VTC Farm

1. Recommend discussion with electric utility to convert the service from 120/240 open delta (“high leg”) system to standard 120/208 volt three phase, four wire

system. High leg systems can be dangerous if occupant is not aware of the differences in voltage.
2. Recommend investigation as to exactly how the new main service entrance panelboard located outdoors serves the farm. The breaker sizes in the panelboard compared to the building's service entrance sizes do not match in all instances. Produce a one-line drawing showing circuit sizes to verify system is code compliant. The system is hard to understand.
3. Replace older panelboards and electrical distribution within buildings. Particularly in the main building and the horse barns.

Energy Efficiency Measures:
Mechanical, Plumbing and Fire Protection:

General:
We recommend the implementation of variable volume pumping systems and the use of two way control valves. Variable speed pumping can provide large energy savings over time as the pump speed is reduced based upon load. The implementation of these systems is often provided with a credit from Efficiency Vermont.

Administrative Center
1. We would recommend the ventilation equipment for the building be converted to an energy recovery system. This could be implemented by removing the bathroom exhaust fans and existing air handler and providing an ERV located within the attic space.
2. We would recommend implementation of an HVAC system that could provide simultaneous heating and cooling within offices, as this building appears to be occupied year round and the current system requires a complete changeover from heating to cooling. We would recommend the implementation of a water to air heat pump system in this building.

Old Dorm
1. The energy recovery ventilation for the dorm is located at the west end of the building. We would recommend that the occupied area of the dorm coincide with the energy recovery system location, as currently it does not.

Conant Hall
1. See note 1 in deferred maintenance.

Judd Hall/Bookstore
1. The main areas of the building have relatively new HVAC systems. We would recommend the implementation of two cooling zones in the offices at the west end of the building. This could be accomplished with two split system air source heat pumps and by leaving the hot water radiation as backup heat for the offices.

Morrill Hall
1. We recommend that the HVAC system for the building be redeveloped during a renovation of Morril Hall and the building be provided with an energy recovery ventilation system.

Robert Clarke Hall

1. As this is a relatively new system, we recommend the implementation of variable volume pumping.

Green Hall

1. See deferred maintenance.

Hartness Library

1. See deferred maintenance

Morey Residence Hall and Dining Hall

1. Implement energy recovery for bathroom exhaust air and make up air.

Keenan Residence Hall

1. See deferred maintenance

President's House

1. We recommend the replacement of the existing boiler with a high efficiency condensing boiler.

SHAPE fitness Center and Campus Center

1. See deferred maintenance.
2. Implement energy recovery ventilation for the gym, gym offices, and racquet ball courts. Replace Gym Air handler.

Nutting Residence Hall

1. Recommend connecting the hot water system for the building to the Biomass heat recovery system.

Fire Science Lab

1. Recommend connecting the hot water system for the building to the Biomass heat recovery system.

Construction Lab

1. Recommend connecting the hot water system for the building to the Biomass heat recovery system.

Facilities Center

1. We would recommend the addition of occupancy sensors in the facilities shop to disable exhaust systems upon lack of occupancy. Currently the systems are manually operated on/off and could be left on unintentionally.

Red Schoolhouse

1. NA

Admissions Allen House

1. NA

Langevin House

1. We recommend the replacement of the mercury thermostats with controllable thermostats if acceptable with the historical nature of the building.
2. A residential style ERV could be added to the conference room ventilation unit and replace the bathroom exhaust fans in the adjacent bathrooms. This would provide energy savings during times the conference center is occupied.

VTC Farm

1. NA

Electrical:

Administrative Center

1. Over time replace fluorescent fixtures with LED fixtures to reduce energy and maintenance. Add occupancy and daylight sensors throughout to reduce energy. Add dimming control.

Old Dorm

1. Over time replace fluorescent fixtures with LED fixtures to reduce energy and maintenance. Add occupancy and daylight sensors throughout to reduce energy. Add dimming control

Conant Hall

1. Over time replace fluorescent fixtures with LED fixtures to reduce energy and maintenance. Add occupancy and daylight sensors throughout to reduce energy. Add dimming control.

Judd Hall/Bookstore

1. Over time replace fluorescent fixtures with LED fixtures to reduce energy and maintenance. Add occupancy and daylight sensors throughout to reduce energy. Add dimming control.

Morrill Hall

1. Over time replace fluorescent fixtures with LED fixtures to reduce energy and maintenance. Add occupancy and daylight sensors throughout to reduce energy. Add dimming control.
2. Remove, reduce and/or replace transformers with high efficiency type within the building, as part of electrical infrastructure replacement noted in previous sections.

Robert Clarke Hall

1. Over time replace fluorescent fixtures with LED fixtures to reduce energy and maintenance. Add occupancy and daylight sensors throughout to reduce energy. Add dimming control.

Green Hall

1. Over time replace fluorescent fixtures with LED fixtures to reduce energy and maintenance. Add occupancy and daylight sensors throughout to reduce energy. Add dimming control.

Hartness Library

1. Over time replace fluorescent fixtures with LED fixtures to reduce energy and maintenance. Add occupancy and daylight sensors throughout to reduce energy. Add dimming control.

Morey Residence Hall and Dining Hall

1. Over time replace fluorescent fixtures with LED fixtures to reduce energy and maintenance. Add occupancy and daylight sensors throughout to reduce energy. Add dimming control.
2. Remove, reduce and/or replace transformers with high efficiency type within the building, as part of electrical infrastructure replacement noted in previous sections.

Keenan Residence Hall

1. Over time replace fluorescent fixtures with LED fixtures to reduce energy and maintenance. Add occupancy and daylight sensors throughout to reduce energy. Add dimming control.

President's House

1. Over time replace fluorescent fixtures with LED fixtures to reduce energy and maintenance. Add occupancy and daylight sensors throughout to reduce energy. Add dimming control.

SHAPE fitness Center and Campus Center

1. Over time replace fluorescent fixtures with LED fixtures to reduce energy and maintenance. Add occupancy and daylight sensors throughout to reduce energy. Add dimming control.
2. Remove, reduce and/or replace transformers with high efficiency type within the building, as part of electrical infrastructure replacement noted in previous sections.

Nutting Residence Hall

1. Over time replace fluorescent fixtures with LED fixtures to reduce energy and maintenance. Add occupancy and daylight sensors throughout to reduce energy. Add dimming control.

Fire Science Lab

1. Over time replace fluorescent fixtures with LED fixtures to reduce energy and maintenance. Add occupancy and daylight sensors throughout to reduce energy. Add dimming control.

Construction Lab

1. Over time replace fluorescent fixtures with LED fixtures to reduce energy and maintenance. Add occupancy and daylight sensors throughout to reduce energy. Add dimming control.

Facilities Center

1. Over time replace fluorescent fixtures with LED fixtures to reduce energy and maintenance. Add occupancy and daylight sensors throughout to reduce energy. Add dimming control.

Red Schoolhouse

1. Over time replace fluorescent fixtures with LED fixtures to reduce energy and maintenance. Add occupancy and daylight sensors throughout to reduce energy. Add dimming control.

Admissions Allen House

1. Over time replace fluorescent fixtures with LED fixtures to reduce energy and maintenance. Add occupancy and daylight sensors throughout to reduce energy. Add dimming control.

Langevin House

1. Over time replace fluorescent fixtures with LED fixtures to reduce energy and maintenance. Add occupancy and daylight sensors throughout to reduce energy. Add dimming control.

VTC Farm

1. Over time replace fluorescent fixtures with LED fixtures to reduce energy and maintenance. Add occupancy and daylight sensors throughout to reduce energy. Add dimming control.

Sincerely,
Derek Siegler
John Askew

LN Consuting Inc

PROBABLE COST OPINION

DESCRIPTION		PCC		PSC		PPC
Infrastructure Recommendations:						
Acronym Key						
PCC - PROBABLE CONSTRUCTION COST						
PSC - PROBABLE SOFT COSTS						
PPC - PROBABLE PROJECT COST						
Life Safety and Code Compliance:						
Mechanical, Plumbing and Fire Protection:						
Administrative Center						
1. We recommend the installation of a reduced pressure zone backflow preventer be installed on the water supply to the server room heat pump. The waste connection to the waste system should be through an indirect drain and not a hard connection to the waste pipe. As this is not a typical installation and results in excessive domestic water use we would recommend the removal of the water source heat pump and replacement with an air source heat pump with low ambient cooling capabilities.		$1,000		$0		$1,000
2. The return air for the air handler/ventilation machine uses the egress corridors as a return plenum. This is not consistent with current mechanical code. It is recommended to fully duct the system, or install smoke dampers in the pass-through ducts between egress corridors and the central atrium space.		$8,000		$2,000		$10,000
3. We recommend installing drain pans beneath water piping that runs over server/telcom racks located in the basement or to reroute the piping so that it is no longer over the top of the server equipment.		$1,200		$0		$1,200
4. We recommend the installation of a reduced pressure zone backflow preventer on the domestic water service.		$1,200		$0		$1,200
5. We recommend adding exhaust to the printer room.		$1,200		$0		$1,200
Old Dorm						
1. We recommend investigating if the bathroom exhaust for the lower level bathrooms in the occupied areas is operational at all times and if not, enable the exhaust fan during occupied hours.		$2,000		$0		$2,000
Conant Hall		$1,200		$0		$1,200
1. At the time of the first site visit there was a significant amount of water on the floor of the water heater room and into the high voltage electrical equipment area. It appeared this was due to a float on a sump pump being stuck in position. We recommend the addition of a DDC or audible alarm to this sump pump to avoid water accumulation in the main electric entrance to the building.		$450		$0		$450
Judd Hall/Bookstore						
1. We recommend adding exhaust in the printer room located in the office suite on the east side of the building as recommended per ASHRAE.		$2,500		$0		$2,500
Morrill Hall						
1. There is an uninsulated steam heat exchanger located directly above the electric panel in the mechanical room. This heat exchanger should be insulated and a drain pan provided over the top of the panel.		$1,500		$0		$1,500
2. The main steam strainer is missing a cap and is leaking onto the mechanical room floor. The cap should be replaced.		$20		$0		$20
3. It is recommended that the wood shop be provided with ventilation air and the shop exhaust unit has a fine aprticulate filter installed.		$2,500		$1,500		$4,000
4. The laboratory storage spaces are required to be provided with exhaust per ASHRAE.		$5,000		$2,000		$7,000
5. The janitor closet adjacent to the mechanical room should have exhaust per ASHRAE.		$1,000		$0		$1,000
Robert Clarke Hall						
1. No Life Safety items noted.		NA		NA		NA
Green Hall						
1. We recommend the addition of exhaust ventilation of the brick storage closet in the civil lab back of house area.		$1,000		$0		$1,000
2. There did not appear to be adequate exhaust capture hoods over some cement mixing locations in the lab. We suggest the implementation of a mobile exhaust unit, or installation of permanent hoods at all locations where mixing is occurring.		$8,000		$0		$8,000
3. The exhaust fan on the east side of the building appeared to be off at the time of the site visit. As this fan provides exhaust for bathrooms and janitor closets, the fan should be repaired.		$2,500		$0		$2,500
4. Add ventilation to mechanical basement storage space.		$1,200		$0		$1,200
Greenhouse						
1. No Life Safety items noted.		NA		NA		NA
Hartness Library						
1. No Life Safety items noted.		NA		NA		NA
Morey Residence Hall and Dining Hall						

1. The building is operating under an extremely negative pressure. This operation can cause condensation within exterior walls of the building and damage the structure of the building. It also can create mold/mildew growth within enclosed spaces which compromise building air quality. We recommend balancing of the kitchen air systems to create a neutral pressure in the space.		$6,000		$0		$6,000
2. The kitchen exhaust for the main kitchen hood appears to be galvanized duct. Per NFPA this ductwork should be welded stainless steel ductwork. We recommend reviewing this installation and installing ductwork and fire rated insulation that meets the requirements of NFPA 96.		$30,000		$6,000		$36,000
3. Verify hood requirments based on equipment. Replace central hood with two.		$38,000		$12,000		$50,000
Keenan Residence Hall						
1. There did not appear to be an ansul fire protection system in the ADA dorm room. It is recommended to add a fire protection system for the range.		$3,000		$0		$3,000
President's House						
1. The bathroom exhaust fan terminations in the attic should be terminated to the exterior of the building with backdraft dampers. The moist exhaust air from the bathroom exhaust fans can create mold and mildew conditions in the attic, and/or cause structural damage to the roof framing over time.		$1,000		$0		$1,000
2. The day lighted drain in the garage is currently filled with stagnant water. We recommend this pipe be cleaned and the blockage removed to prevent bacterial growth in the garage.		$0		$0		$0
SHAPE fitness Center and Campus Center						
1. Remove Sprinkler from Elevator Machine Room		$500		$0		$500
Nutting Residence Hall						
1. There is no ventilation provided in the Janitor office in the basement level. We recommend the addition of ventilation for this space.		$2,500		$0		$2,500
2. The exhaust grilles in much of the building appear to be coated with dust. It is recommended that the exhaust ducts, and HRV heat exchanger be examined and cleaned. We have seen in some instances at other facilities this can reduce exhaust airflow by as much as 25 percent.		$6,500		$0		$6,500
3. Install domestic water backflow preventer.		$5,000		$0		$5,000
Fire Science Lab						
1. No Life Safety items noted.		NA		NA		NA
Construction Lab						
1. No Life Safety items noted.		NA		NA		NA
Facilities Center						
1. The paint room exhaust is located directly above the paint table. This exhaust location draws paint fumes through the breathable range of the user. We recommend the use of a linear slot exhaust hood along the length of the table with the exhaust at the height of the table.		$7,500		$0		$7,500
Red Schoolhouse						
1. There does not appear to be any exhaust for the janitor's closet on the first floor. We recommend adding an exhaust fan for this space.		$1,000		$0		$1,000
2. The bathroom exhaust fans are switch operated. We recommend operation of the fans by occupancy sensors.		$150		$0		$150
Admissions Allen House						
1. No Life Safety items noted.		NA		NA		NA
Langevin House						
1. It is recommended that proper domestic hot water tempering valves be installed for both water heaters.		$2,000		$0		$2,000
2. It is recommended that a secondary form of containment be provided below the oil tank located in the basement.		$500		$0		$500
Barn Complex						
1. It is recommended that the propane tanks or water heater vent for the milking barn be relocated. The regulator for the tanks is required to be 5' (minimum) away from the combustion vent/intake of the unit per NFPA.		NA		NA		NA
2. We recommend adding mechanical combustion air intake to the existing boiler room from outside of the building.		$2,500		$0		$2,500
3. We recommend that a range hood be installed over the kitchen range and provided with an ansul fire suppression system.		$3,000		$0		$3,000
4. We recommend that exhaust air be provided for the locker rooms and offices.						
Electrical:						
Administrative Center						
1. Switching of lighting in corridors should be replaced with keyed switches per NFPA 101 7.8.1.2.		$500		$0		$500
2. Fire alarm system not per code; spacing of horn/strobes inadequate and door holders need be used instead of wedges at corridor or stairwell doors. Add smoke detectors at doors for door holder release. Connect elevator to fire alarm system per code. Fire alarm also dates to 1986 and replacement of system necessary for code compliance.		$45,000		$8,000		$53,000
3. Panel MDP is not located per NEC 110.26. To be relocated and the space in front of panelboard needs to be increased.		$10,000		$1,000		$11,000
4. It is highly likely the Panel MDP and possibly panelboards fed from MDP are not rated for the available fault current. Perform fault current analysis.		$0		$5,000		$5,000
5. Replacement of panelboards due to inadequate short circuit ratings.		$30,000		$5,000		$35,000
6. NEC 2017 requires additional receptacles in offices. Additional receptacles should be added.		$20,000		$3,000		$23,000

7. Does not appear to have adequate or working emergency lighting in some locations. Provide additional emergency lighting.		$20,000		$3,000		$23,000
Old Dorm						
1. Switching of lighting in corridors should be replaced with keyed switches per NFPA 101 7.8.1.2.		$500		$0		$500
2. Elevator installation appears to not be code compliant. May not be tied to fire alarm. Remove shunt trip if still activated.		$6,000		$1,000		$7,000
3. Verify if fire alarm horns in dorm rooms are "low frequency" type. Provide if needed.		$10,000		$2,000		$12,000
4. Add fire alarm horns or strobes in several toilet/shower rooms.		$2,000		$500		$2,500
5. Does not appear to have adequate or working emergency lighting in some locations. Provide additional emergency lighting.		$20,000		$3,000		$23,000
Conant Hall						
1. Switching of lighting in corridors should be replaced with keyed switches per NFPA 101 7.8.1.2.		$500		$0		$500
2. The existing electrical infrastructure is very old and should be replaced. This includes panelboard, circuiting, disconnect equipment and devices such as receptacles.		$200,000		$15,000		$215,000
3. Elevator installation appears to not be code compliant. May not be tied to fire alarm. Remove shunt trip if still activated. Provide cab lighting switch fo elevator.		$6,000		$1,000		$7,000
4. Existing fire alarm system should be upgraded or replaced.		$47,000		$8,000		$55,500
5. Provide new emergency lighting throughout and remove old central battery system.		$25,000		$3,500		$28,500
Judd Hall/Bookstore						
1. Switching of lighting in corridors should be replaced with keyed switches per NFPA 101 7.8.1.2.		$500		$0		$500
2. Verify grounding as a remote building to the service entrance from Conant is correct.		$1,000		$500		$1,000
3. Coordinate with local code official that clearance of exit from electric room is acceptable.		$0		$500		$1,000
Morrill Hall						
1. Switching of lighting in corridors should be replaced with keyed switches per NFPA 101 7.8.1.2.		$500		$0		$500
2. Fire alarm system spacing of horn/strobes may need to be revised. If proposing to keep corridor doors open, do not use wedges. Provide door holders with smoke detectors for door holder release.		$6,000		$1,000		$7,000
3. Elevator installation appears to not be code compliant. May not be tied to fire alarm. Remove shunt trip if still activated.		$6,000		$1,000		$7,000
4. Does not appear to have adequate or working emergency lighting in some locations; particularly stairwells. Provide additional emergency lighting.		$20,000		$3,000		$23,000
5. Provide disconnecting means for Panel EP2.		$3,000		$500		$35,000
Robert Clarke Hall						
1. Fire alarm system not per code; spacing of horn/strobes inadequate and door holders need be used instead of wedges at corridor or stairwell doors. Add smoke detectors at doors for door holder release.		$7,000		$1,500		$8,500
2. Main electric room door should swing out and be provided with panic bar.		$1,500		$400		$1,900
Green Hall						
1. Switching of lighting in corridors should be replaced with keyed switches per NFPA 101 7.8.1.2.		$500		$0		$500
2. Fire alarm system not per code; spacing of horn/strobes inadequate and door holders need be used instead of wedges at corridor or stairwell doors. Add smoke detectors at doors for door holder release.		$6,000		$1,000		$7,000
3. It is highly likely the Panel MDP and possibly panelboards fed from MDP are not rated for the available fault current. Perform fault current analysis.		$0		$5,000		$5,000
4. The existing electrical infrastructure is very old and should be replaced. This includes panelboard, circuiting, disconnect equipment and devices such as receptacles.		$240,000		$20,000		$260,000
5. Electric room egress not to code per NEC 110.26; no panic bar, no multiple exits. Room needs to be upgraded to accommodate main switchgear.		$10,000		$2,000		$12,000
6. Provide GFI receptacles in green house and mechanical room type spaces.		$2,000		$500		$2,500
Hartness Library						
1. No obvious violations.						
Morey Residence Hall and Dining Hall						
1. Switching of lighting in corridors should be replaced with keyed switches per NFPA 101 7.8.1.2.		$500		$0		$500
2. Fire alarm system not per code; spacing of horn/strobes inadequate and door holders need be used instead of wedges at corridor or stairwell doors. Add smoke detectors at doors for door holder release.		$6,000		$1,000		$7,000
3. It is highly likely the Panel MDP and possibly panelboards fed from MDP are not rated for the available fault current. Perform fault current analysis.		$0		$5,000		$5,000
4. Much of the existing electrical infrastructure is very old and should be replaced. This includes panelboard, circuiting, disconnect equipment and devices such as receptacles.		$260,000		$25,000		$285,000
5. Electric room egress not to code per NEC 110.26; no panic bar, no multiple exits. New electrical gear would need to be located in different space due to size of room. New electrical gear would need to be located in different space due to size of room. The main switchgear does not have code compliant clearance or access.		$10,000		$2,000		$12,000
6. Some equipment in "crawl" space in basement does not meet height clearance requirements and needs to be relocated.		$10,000		$2,000		$12,000
7. Replace any emergency lighting fed via the central battery in kitchen area with either life safety system powered lighting or battery powered emergency lighting units. Further investigate and test remaining systems to verify code compliance.		$5,000		$500		$3,500
Keenan Residence Hall						
1. Switching of lighting in corridors should be replaced with keyed switches per NFPA 101 7.8.1.2.		$500		$0		$500

2. Fire alarm system not per code; spacing of horn/strobes inadequate and door holders need be used instead of wedges at corridor or stairwell doors. Add smoke detectors at doors for door holder release.		$6,000		$1,000		$7,000
3. Verify if fire alarm horns in dorm rooms are "low frequency" type. Provide if needed.		$10,000		$2,000		$12,000
4. It is highly likely the Panel MDP and possibly panelboards fed from MDP are not rated for the available fault current. Perform fault current analysis.		$0		$5,000		$5,000
5. The existing electrical infrastructure is very old and should be replaced. This includes panelboard, circuiting, disconnect equipment and devices such as receptacles.		$260,000		$25,000		$285,000
6. Electric room egress not to code per NEC 110.26; no panic bar, no multiple exits. The main switchgear does not have code compliant clearance or access (cost to address this in in 5. above.)		$3,000		$500		$3,500
7. Provide GFI receptacles in wet and mechanical room type spaces.		$2,000		$250		$2,250
8. Emergency lighting system is most likely not code compliant. Recommend verifying if transfer switch strictly serves emergency lighting. Alternative would be to provide battery powered emergency lighting throughout building.		$20,000		$3,000		$23,000
President's House						
1. "Single-family owner occupied dwellings" are exempt are exempt from the NEC in Vermont, however it is assumed the residence should be NEC code compliant for a dwelling.						
2. The layout of receptacles throughout most of the house does not meet requirements of NEC 210.52.		$6,000		$1,000		$7,000
3. There are almost no GFI or AFCI protected devices as required by NEC 210.8 and 210.12 respectively. The latest NEC codes require both in almost all locations within a dwelling.		$3,000		$500		$3,500
4. The bedrooms require smoke detectors with "low frequency" audible alarm, providing 75 dB at the "pillow".		$2,000		$300		$2,300
5. If any bedrooms, or the house in general, are required to be ADA compliant, at a minimum additional strobe lights would be required.		$2,000		$300		$2,300
6. Replace service entrance disconnect and panelboards if fusing in main 400 amp disconnect greater than 200 amps.		$5,000		$1,000		$6,000
SHAPE fitness Center and Campus Center						
1. Switching of lighting in corridors should be replaced with keyed switches per NFPA 101 7.8.1.2.		$500		$0		$500
2. Fire alarm system not per code; spacing of horn/strobes inadequate and door holders need be used instead of wedges at corridor or stairwell doors. Add smoke detectors at doors for door holder release.		$6,000		$1,000		$7,000
3. It is highly likely the Panel MDP and possibly panelboards fed from MDP are not rated for the available fault current. Perform fault current analysis.		$0		$5,000		$5,000
4. Elevator installation appears to not be code compliant. May not be tied to fire alarm. Remove shunt trip if still activated. Provide cab lighting switch for elevator.		$6,000		$1,000		$7,000
5. Verify if old emergency lighting battery system still in operation. Replace any emergency lighting fed via the central battery with battery powered emergency lighting units		$10,000		$1,000		$11,000
6. Does not appear to have adequate or working emergency lighting in some locations; particularly stairwells. Provide additional emergency lighting.		$4,000		$500		$4,500
Nutting Residence Hall						
1. Switching of lighting in corridors should be replaced with keyed switches per NFPA 101 7.8.1.2.		$500		$0		$500
2. Fire alarm system not per code; spacing of horn/strobes inadequate and door holders need be used instead of wedges at corridor or stairwell doors. Add smoke detectors at doors for door holder release.		$6,000		$1,000		$7,000
3. It is highly likely the Panel MDP and possibly panelboards fed from MDP are not rated for the available fault current. Perform fault current analysis.		$0		$5,000		$5,000
4. The existing electrical infrastructure is very old and should be replaced. This includes panelboard, circuiting, disconnect equipment and devices such as receptacles.		$260,000		$25,000		$285,000
5. Move high voltage transformer and switch outdoors due to other utilities in this room.		$40,000		$3,000		$33,000
6. Electric room egress not to code per NEC 110.26; no panic bar, no multiple exits.		$10,000		$2,000		$12,000
Fire Science Lab						
1. No obvious violations however should remove all equipment blocking panelboard.		$0		$500		$500
Construction Lab						
1. Switching of lighting in corridors should be replaced with keyed switches per NFPA 101 7.8.1.2.		$500		$0		$500
2. Verify GFI protection for receptacles in maintenance room type spaces.		$2,000		$200		$2,200
Facilities Center						
1. Switching of lighting in corridors should be replaced with keyed switches per NFPA 101 7.8.1.2.		$500		$0		$500
2. Provide additional emergency and exit lighting for full coverage.		$3,000		$400		$3,400
3. Paint storage area may be required to be updated to meet NEC Art 500 requirements for hazardous location.		$5,000		$500		$5,500
4. No remote alarm for sprinkler system. Provide fire alarm system for alarm.		$45,000		$4,000		$49,000
5. Boiler plant area requires carbon monoxide detection and sprinkler. Provide fire alarm system (priced above)		$0		$0		$0
6. It is highly likely the Panel MDP and possibly panelboards fed from MDP are not rated for the available fault current. Perform fault current analysis.		$0		$5,000		$5,000
7. GFI protection for receptacles in maintenance type spaces.		$2,500		$300		$2,850
8. Replacement of panelboards due to inadequate short circuit ratings (at service entrance location)		$15,000		$2,500		$17,500
Red Schoolhouse						
1. Switching of lighting in corridors should be replaced with keyed switches per NFPA 101 7.8.1.2.		$500		$0		$500
2. Elevator installation appears to not be code compliant. May not be tied to fire alarm. Remove shunt trip if still activated.		$5,000		$500		$5,500
Admissions Allen House						

1. Switching of lighting in corridors should be replaced with keyed switches per NFPA 101 7.8.1.2.		$500		$0		$500
Langevin House						
1. Switching of lighting in corridors should be replaced with keyed switches per NFPA 101 7.8.1.2.		$500		$0		$500
VTC Farm						
1. Farms are exempt from the NEC in Vermont, however there are what appear to be less than optimal electrical conditions throughout. Recommendations for improving the electrical infrastructure are listed in the System Upgrades or Deferred Maintenance section. The fire alarm system for main building does appear to be code compliant. No other buildings require fire alarm.		$0		$0		$0
System Upgrades or Deferred Maintenance:						
Mechanical:						
General: Most buildings on campus utilize pneumatic control systems. It is recommended as upgrades or work completed on equipment occurs that digital controls be implemented. Digital controls allow for the owner/operator to receive information from the system regarding operational status as well as provide emailed alarms when equipment failures occur. The current systems can have failures of equipment components that could go unchecked without a regular maintenance inspection.						
Administrative Center						
1. The enclosure around the air handling unit does not allow for proper maintenance access to the unit and filters. We suggest increasing the size of the enclosure to allow for proper access and that the filters be replaced, as at the time of the visit they were not properly installed and appeared damaged.		$2,500		$0		$2,500
Old Dorm						
1. The domestic water pump for heating domestic water by the steam heat exchanger was decommissioned at the time of the site visit. This pump should be re-enabled as currently domestic hot water is generated by the electric resistance unit.		$1,000		$0		$1,000
Conant Hall						
1. We would recommend the replacement of the HVAC system with a central energy recovery ventilation system at the time of building renovation. The unit ventilators appear to be at the end of their life cycle and are an inefficient system for ventilating the building.		$850,000		$170,000		$1,020,000
2. The AV equipment room at the main first floor lecture hall was very hot due to the equipment running. We suggest adding exhaust to this space to provide cooling for the equipment.		$1,500		$0		$1,500
Judd Hall/Bookstore						
1. The control of the heat in the west end offices may conflict with the cooling requirements of the zone. Occupants indicated malfunction of the heating thermostats. Replace with programmable thermostats		$250		$0		$250
Morrill Hall						
1. There are multiple uninsulated sections of piping and equipment within the mechanical room. We recommend that the insulation be repaired or replaced to provide continuous barrier. This will reduce condensation and loss of energy from the central steam system.		$1,500		$0		$1,500
2. We recommend replacing the R-22 refrigeration Leibert system for the IT server room with a non-ozone depleting/low greenhouse gas coefficient refrigerant.		$2,500		$0		$2,500
Robert Clarke Hall						
1. No obvious issues.		NA		NA		NA
Green Hall						
1. Recommend replacing the roof top air handler systems with energy recovery ventilation systems. The units appear to be at the end of their useful lfe cycle.		$120,000		$24,000		$144,000
2. Recommend replacing the decommissioned hot water circulator pump with a variable speed pump to provide redundancy for the system as well as possible energy savings.		$5,500		$0		$5,500
Hartness Library						
1. No obvious issues.		NA		NA		NA
Morey Residence Hall and Dining Hall						
1. We recommend the replacement of the exhaust systems for the kitchen with variable volume kitchen exhaust control. This would coincide with balancing and variable volume make up air control for the kitchen area.		$20,000		$8,500		$28,500
2. We recommend providing conditioned make up air for the laundry room area.		$8,500		$6,000		$14,500
Keenan Residence Hall						
1. We recommend implementation of heat recovery ventilation make-up air system be provided for the dorm bathrooms and janitors closets when Keenan Hall is planned to be renovated. The current exhaust system could be creating a negative pressure on the building and cause air quality problems.		$135,000		$27,000		$162,000
2. We recommend replacing the existing plumbing fixtures with new, water efficient plumbing fixtures in the bathrooms that have not undergone bathroom renovations.		$200,000		$0		$200,000
President's House						
1. We recommend that all thermostats be replaced with programmable type thermostats.		$1,000		$0		$1,000
2. All hot water piping and domestic water piping should be insulated to meet all energy efficiency requirements.		$2,500		$0		$2,500
3. We recommend the replacement of the kitchen sink faucet.		$2,500		$0		$2,500

4. We recommend the implementation of a permanent ducted dehumidifier for the basement area so that dehumidification occurs evenly throughout the basement space.		$5,000		$0		$5,000
5. We recommend the removal of all electric resistance heating.						
SHAPE fitness Center and Campus Center						
1. The existing pool HVAC equipment is beyond its service life, we recommend replacement with an integrated heat pump/pool heating based off dehumidification system that incorporates integral energy recovery ventilation and economizer operation. This is the most efficient method of supporting the pool operations.		$600,000		$120,000		$720,000
Nutting Residence Hall						
1. We recommend replacing existing plumbing fixtures and piping based on the age of the system.		$380,000		$0		$380,000
2. We recommend the replacement of the air handling serving the central commons areas of Nutting as it is beyond its expected life cycle.		$24,000		$6,000		$30,000
Fire Science Lab						
1. No obvious concerns.		NA		NA		NA
Construction Lab						
1. We recommend the implementation of energy recovery ventilation for the locker rooms, offices and classrooms and that the unit heater outside air control dampers be removed and insulated.		$25,000		$5,000		$30,000
Facilities Center						
1. We noted that the heat rejection pump for recovery of heat from the generator jacket appeared to not be running at the time of the visit. We recommend that this system be used for heating of the building when waste heat is available.		$1,500		$0		$1,500
Red Schoolhouse						
1. No obvious concerns.		NA		NA		NA
Admissions Allen House						
1. No obvious concerns.		NA		NA		NA
Langevin House						
1. No obvious concerns.		NA		NA		NA
VTC Farm						
1. We recommend the removal of the two electric resistance tank water heaters. They appear to be at the end of their life cycle and are prone to tank failure.		$1,500		$0		$1,500
2. We recommend the replacement of the plumbing fixtures in the main milking barn as most faucets were found to be leaking and plumbing fixtures and piping appears to be tired and possibly contain lead based solder.		$15,000		$0		$15,000
Electrical:						
General Note: In essentially every building, lighting is fluorescent type. Some buildings the condition of fixtures is good while some others are in extremely poor condition. As part of system upgrades or deferred maintenance, lighting could be added. However all recommended lighting changes not associated with emergency egress lighting, which is included under the Life Safety portion of this report, or where the issue is strictly a maintenance issue, is included under the Energy Efficiency Measures portion of the Electrical Systems report.						
In addition, many of the building have electrical infrastructures at or above 50 years old. These should be prepared for replacement whether there are code violations or not.						
Administrative Center						
1. Age of fire alarm system makes it likely the system should be replaced. Costs shown in Life Safety and Code Compliance section.		$0		$0		$0
Old Dorm						
1. In some locations, prepare to replace portions of existing electrical infrastructure including panelboards, circuits and device. Can be done as part of architectural renovation work.		$60,000		$5,000		$65,000
Conant Hall						
1. As noted in code concerns the electrical infrastructure is old and unsafe. It is recommended the entire electrical infrastructure be upgraded. Costs shown in Life Safety and Code Compliance section.		$0		$0		$0
Judd Hall/Bookstore						
1. In office area, prepare to replace circuiting and devices as part of architectural renovation work.		$40,000		$5,000		$45,000
2. In addition to saving energy, replacing the HID high-bay fixtures in the tennis court area with LED high-bay fixtures would reduce maintenance associated with replacing lamps in hard to access fixtures.		$7,500		$500		$8,000
Morrill Hall						
1. Investigate replacing indoor vault transformers with outdoor padmount transformer.		$40,000		$5,000		$45,000
2. Downstream panelboards with this building, particularly the old portion, should be replaced.		$70,000		$5,000		$75,000
Robert Clarke Hall						
1. No obvious issues.		$0		$0		$0

Green Hall						
1. As noted in code concerns the electrical infrastructure is old and unsafe. It is recommended the entire electrical infrastructure be upgraded. Costs shown Life Safety and Code Compliance section.		$0		$0		$0
Hartness Library						
1. No obvious issues.		$0		$0		$0
Morey Residence Hall and Dining Hall						
1. As noted in code concerns the electrical infrastructure is old and unsafe. It is recommended the entire electrical infrastructure be upgraded. Costs shown in Life Safety and Code Compliance section.		$0		$0		$0
2. Replace any of the older central emergency lighting battery systems with either life safety powered (generator) lighting or battery powered emergency lighting. This is regardless of whether the existing systems are acceptable to local authority having jurisdiction.		$15,000		$1,500		$16,500
Keenan Residence Hall						
1. As noted in code concerns the electrical infrastructure is old and unsafe. It is recommended the entire electrical infrastructure be upgraded. Costs shown Life Safety and Code Compliance section.		$0		$0		$0
President's House						
1. Even if the main disconnect has 200 amp fuses, the fact there are no GFI or AFCI breakers within building would justify replacing main disconnect and panelboards with a code compliant panelboard.		$4,000		$500		$4,500
2. Remove exterior pole lights.		$1,000		$0		$1,000
SHAPE fitness Center and Campus Center						
1. As noted in code concerns portion of the electrical infrastructure, particularly in the gym portion of building, is old and unsafe. It is recommended the electrical infrastructure be upgraded. Cost is in addition to cost due to short circuit ratings noted in Life Safety and Code Compliance section.		$240,000		$20,000		$260,000
2. Regardless of whether existing central battery powered emergency lighting adjacent to gym meets code or not, replace this system with either life safety powered lighting or battery powered emergency lighting.		$10,000		$1,500		$11,500
3. In addition to saving energy, replacing the T8 high-bay fixtures in the gymnasium and pool with LED high-bay fixtures would reduce maintenance associated with replacing lamps in hard to access fixtures. The fixtures in the pool should also be natatorium rated to reduce corrosion.		$15,000		$1,500		$16,500
Nutting Residence Hall						
1. As noted in code concerns the electrical infrastructure is old and unsafe. It is recommended the entire electrical infrastructure be upgraded. Costs shown Life Safety and Code Compliance section.		$250,000		$20,000		$270,000
Fire Science Lab						
1. Provide accessible test switch to be able to test emergency ballasts in light fixture. This could be done as part of an LED lighting retrofit.		$1,500		$250		$1,750
2. In addition to saving energy, replacing the high-bay fixtures in the garage area with LED high-bay fixtures would reduce maintenance associated with replacing lamps in hard to access fixtures.		$5,000		$500		$5,500
Construction Lab						
1. There are a few older panelboards however none in need of significant maintenance. Over time these panelboards should be replaced.		$20,000		$2,000		$22,000
Facilities Center						
1. Portions of the electrical infrastructure are old and potentially unsafe. It is recommended the electrical infrastructure be upgraded. This is in addtion to costs to replace panelboards due to short circuit ratings shown Life Safety and Code Compliance section.		$150,000		$15,000		$165,000
Red Schoolhouse						
1. Over time the single phase panelboard in this building should be replaced.		$6,000		$1,000		$7,000
Admissions Allen House						
1. No obvious concerns.		$0		$0		$0
Langevin House						
1. Both of the fire alarm panels are over 20 years old. Recommend they be replaced with a single fire alarm panel.		$15,000		$2,000		$17,000
2. There are a number of ceiling fixtures with CFL screw in lamps. These are exposed and should be provided with some form of protection to prevent damages the bulbs.		$2,000		$200		$2,200
VTC Farm						
1. Recommend discussion with electric utility to convert the service from 120/240 open delta ("high leg") system to standard 120/208 volt three phase, four wire system. High leg systems can be dangerous if occupant is not aware of the differences in voltage.		$15,000		$2,000		$17,000
2. Recommend investigation as to exactly how the new main service entrance panelboard located outdoors serves the farm. The breaker sizes in the panelboard compared to the building's service entrance sizes do not match in all instances. Produce a one-line drawing showing circuit sizes to verify system is code compliant. The system is hard to understand.		$0		$5,000		$5,000
3. Replace older panelboards and electrical distribution within buildings. Particularly main building and horse barns		$75,000		$7,000		$82,500

Energy Efficiency Measures:						
Mechanical, Plumbing and Fire Protection:						
General: We recommend the implementation of variable volume pumping systems and the use of two way control valves. Variable speed pumping can provide large energy savings over time as the pump speed is reduced based upon load. The implementation of these systems is often provided with a credit from Efficiency Vermont.						
Administrative Center						
1. We would recommend the ventilation equipment for the building be converted to an energy recovery system. This could be implemented by removing the bathroom exhaust fans and existing air handler and providing an ERV located within the attic space.		$55,000		$7,500		$62,500
2. We would recommend implementation of an HVAC system that could provide simultaneous heating and cooling within offices, as this building appears to be occupied year round and the current system requires a complete changeover from heating to cooling. We would recommend the implementation of a water to air heat pump system in this building.		$950,000		$190,000		$1,140,000
Old Dorm						
1. The energy recovery ventilation for the dorm is located at the west end of the building. We would recommend that the occupied area of the dorm coincide with the energy recovery system location, as currently it does not.		NA		NA		NA
Conant Hall						
1. See note 1 in deferred maintenance.		NA		NA		NA
Judd Hall/Bookstore						
1. The main areas of the building have relatively new HVAC systems. We would recommend the implementation of two cooling zones in the offices at the west end of the building. This could be accomplished with two split system air source heat pumps and by leaving the hot water radiation as backup heat for the offices.		$25,000		$8,750		$33,750
Morrill Hall						
1. We recommend that the HVAC system for the building be redeveloped during a renovation of Morril Hall and the building be provided with an energy recovery ventilation system.		$1,800,000		$360,000		$2,160,000
Robert Clarke Hall						
1. As this is a relatively new system, we recommend the implementation of variable volume pumping.		$264,000		$0		$264,000
Green Hall						
1. See deferred maintenance.		NA		NA		NA
Hartness Library						
1. See deferred maintenance		NA		NA		NA
Morey Residence Hall and Dining Hall						
1. See deferred maintenance		NA		NA		NA
Keenan Residence Hall						
1. See deferred maintenance		NA		NA		NA
President's House						
1. We recommend the replacement of the existing boiler with a high efficiency condensing boiler.		$16,000		$2,400		$18,400
SHAPE fitness Center and Campus Center						
1. See deferred maintenance		NA		NA		NA
2. Implement energy recovery ventilation for the gym, gym offices, and racquet ball courts. Replace Gym Air handler.		$600,000		$180,000		$780,000
Nutting Residence Hall						
1. Recommend connecting the hot water system for the building to the Biomass heat rejection system.		$250,000		$50,000		$300,000
Fire Science Lab						
1. Recommend connecting the hot water system for the building to the Biomass heat rejection system.		See Construction lab				
Construction Lab						
1. Recommend connecting the hot water system for the building to the Biomass heat rejection system.		$55,000		$8,250		$63,250
Facilities Center						
1. We would recommend the addition of occupancy sensors in the facilities shop to disable exhaust systems upon lack of occupancy. Currently the systems are manually operated on/off and could be left on unintentionally.		$2,000		$0		$2,000
Red Schoolhouse						
1. -		NA		NA		NA
Admissions Allen House						
1. -		NA		NA		NA
Langevin House						
1. We recommend the replacement of the mercury thermostats with controllable thermostats if acceptable with the historical nature of the building.		$550		$0		$550

2. A residential style ERV could be added to the conference room ventilation unit and replace the bathroom exhaust fans in the adjacent bathrooms. This would provide energy savings during times the conference center is occupied.		$4,500		$0		$4,500
VTC Farm						
1. -		NA		NA		NA
Electrical:						
General: Replacement of transformers alone as an energy efficiency measure is not practical. It is noted here as part of larger electrical infrastructure renovation. All costs below do not include any potential incentives or rebates from Efficiency Vermont or other agency.						
Administrative Center						
1. Over time replace fluorescent fixtures with LED fixtures to reduce energy and maintenance. Add occupancy and daylight sensors throughout to reduce energy. Add dimming control.		$125,000		$12,000		$137,500
Old Dorm						
1. Over time replace fluorescent fixtures with LED fixtures to reduce energy and maintenance. Add occupancy and daylight sensors throughout to reduce energy. Add dimming control.		$150,000		$15,000		$165,000
Conant Hall						
1. Over time replace fluorescent fixtures with LED fixtures to reduce energy and maintenance. Add occupancy and daylight sensors throughout to reduce energy. Add dimming control.		$200,000		$20,000		$220,000
Judd Hall/Bookstore						
1. Over time replace fluorescent fixtures with LED fixtures to reduce energy and maintenance. Add occupancy and daylight sensors throughout to reduce energy. Add dimming control.		$40,000		$5,000		$45,000
Morrill Hall						
1. Over time replace fluorescent fixtures with LED fixtures to reduce energy and maintenance. Add occupancy and daylight sensors throughout to reduce energy. Add dimming control.		$220,000		$20,000		$240,000
2. Remove, reduce and/or replace transformers with high efficiency type within the building, as part of electrical infrastructure replacement noted in previous sections. This cost included with electrical infrastructure replacement noted earlier.		$0		$0		$0
Robert Clarke Hall						
1. Over time replace fluorescent fixtures with LED fixtures to reduce energy and maintenance. Add occupancy and daylight sensors throughout to reduce energy. Add dimming control.		$200,000		$20,000		$220,000
Green Hall						
1. Over time replace fluorescent fixtures with LED fixtures to reduce energy and maintenance. Add occupancy and daylight sensors throughout to reduce energy. Add dimming control.		$200,000		$20,000		$220,000
Hartness Library						
1. Over time replace fluorescent fixtures with LED fixtures to reduce energy and maintenance. Add occupancy and daylight sensors throughout to reduce energy. Add dimming control.		$100,000		$10,000		$110,000
Morey Residence Hall and Dining Hall						
1. Over time replace fluorescent fixtures with LED fixtures to reduce energy and maintenance. Add occupancy and daylight sensors throughout to reduce energy. Add dimming control.		$230,000		$20,000		$250,000
2. Remove, reduce and/or replace transformers with high efficiency type within the building, as part of electrical infrastructure replacement noted in previous sections. This cost included with electrical infrastructure replacement noted earlier.		$0		$0		$0
Keenan Residence Hall						
1. Over time replace fluorescent fixtures with LED fixtures to reduce energy and maintenance. Add occupancy and daylight sensors throughout to reduce energy. Add dimming control.		$200,000		$20,000		$220,000
President's House						
1. Over time replace lamps with LED type to reduce energy and maintenance.		$1,000		$0		$1,000
SHAPE fitness Center and Campus Center						
1. Over time replace fluorescent fixtures with LED fixtures to reduce energy and maintenance. Add occupancy and daylight sensors throughout to reduce energy. Add dimming control.		$240,000		$20,000		$260,000
2. Remove, reduce and/or replace transformers with high efficiency type within the building, as part of electrical infrastructure replacement noted in previous sections. This cost included with electrical infrastructure replacement noted earlier.		$0		$0		$0
Nutting Residence Hall						

1. Over time replace fluorescent fixtures with LED fixtures to reduce energy and maintenance. Add occupancy and daylight sensors throughout to reduce energy. Add dimming control.		$220,000		$20,000		$240,000
Fire Science Lab						
1. Over time replace fluorescent fixtures with LED fixtures to reduce energy and maintenance. Add occupancy and daylight sensors throughout to reduce energy. Add dimming control. Added cost to LED replacement noted earlier.		$5,000		$500		$5,500
Construction Lab						
1. Over time replace fluorescent fixtures with LED fixtures to reduce energy and maintenance. Add occupancy and daylight sensors throughout to reduce energy. Add dimming control.		$10,000		$2,000		$12,000
Facilities Center						
1. Over time replace fluorescent fixtures with LED fixtures to reduce energy and maintenance. Add occupancy and daylight sensors throughout to reduce energy. Add dimming control.		$15,000		$1,500		$16,500
Red Schoolhouse						
1. Over time replace fluorescent fixtures with LED fixtures to reduce energy and maintenance. Add occupancy and daylight sensors throughout to reduce energy. Add dimming control.		$20,000		$2,000		$22,000
Admissions Allen House						
1. Over time replace fluorescent fixtures with LED fixtures to reduce energy and maintenance. Add occupancy and daylight sensors throughout to reduce energy. Add dimming control.		$10,000		$2,000		$12,000
Langevin House						
1. Over time replace fluorescent fixtures with LED fixtures or lamps to reduce energy and maintenance. A few locations add occupancy control.		$4,000		$500		$4,500
VTC Farm						
1. Over time replace fluorescent fixtures with LED fixtures to reduce energy and maintenance. Add occupancy and daylight sensors throughout to reduce energy. Add dimming control.		$15,000		$2,000		$17,000


VERMONT TECH
VERMONT TECHNICAL COLLEGE
VISITOR INFORMATION AND PARKING
SOUTH CAMPUS
MOREY • KEENAN • SHAPE
• HARTNESS LIBRARY •