ITEM #1A & B: REPLACE HOT WATER BOILERS WITH HIGH EFFICIENCY DUAL FUEL CONDENSING BOILERS

EXISTING CONDITIONS

Energy Systems Group examined boiler replacement at the following buildings:

- Briarcliff Middle/High School (Item 1A)
- Todd Elementary School (Item 1B)

The selected subcontractor will remove five (5) existing hot water boilers and replace them with five (5) high efficiency-condensing boilers (Qty: 3 at the HS & 2 at the ES). Basis of Design: Fulton Vantage dual-fuel boiler or approved equal.

The Subcontractor will be responsible for all equipment, material, and installation costs for the turnkey replacement of the boilers including the final connection to the Building Management System. Product data for the boilers is provided in *Appendix A.*

All removal and installation configuration costs shall be included in the bid and be no additional cost to ESG. This includes all mechanical, electrical, plumbing, and general construction costs (architectural and structural modifications). Any modifications and relocations required to make new equipment fit in the space shall be included, including possibly removal and replacement of louvers, doors and/or walls.

Table 1 Existing Boilers

Building Name	Tag	Manufacturer	Model Number	Size (MBH)	Steam / Hot Water	Fuel Type	Location Name
Briarcliff MHS	B-1	Weil McLain	94 Series 3 2394	5,557 output	Hot Water	Natural Gas/#2 Fuel Oil	Boiler Room
Briarcliff MHS	B-2	Weil McLain	94 Series 3 2394	5,557 output	Hot Water	Natural Gas/#2 Fuel Oil	Boiler Room
Briarcliff MHS	B-3	Weil McLain	94 Series 3 2394	5,557 output	Hot Water	Natural Gas/#2 Fuel Oil	Boiler Room
Todd ES	B-1	Smith	28A-W-18	4,025 output	Hot Water	Natural Gas/#2 Fuel Oil	Boiler Room
Todd ES	B-2	Weil McLain	88 Series 1 1888	4,035 output	Hot Water	Natural Gas/#2 Fuel Oil	Boiler Room

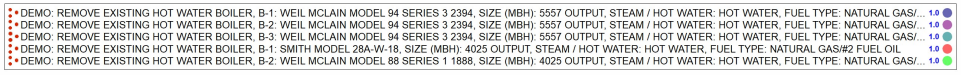


Table 2 Proposed NEW Boilers

Building Name	Tag	Manufacturer	Model Number	Size (MBH)	Steam / Hot Water	Fuel Type	Location Name
Briarcliff MHS	B-1	Fulton	Vantage 6000DF	5,640 output	Hot Water	Natural Gas/#2 Fuel Oil	Boiler Room
Briarcliff MHS	B-2	Fulton	Vantage 6000DF	5,640 output	Hot Water	Natural Gas/#2 Fuel Oil	Boiler Room
Briarcliff MHS	B-3	Fulton	Vantage 6000DF	5,640 output	Hot Water	Natural Gas/#2 Fuel Oil	Boiler Room
Todd ES	B-1	Fulton	Vantage 5000DF	4,600 output	Hot Water	Natural Gas/#2 Fuel Oil	Boiler Room
Todd ES	B-2	Fulton	Vantage 5000DF	4,600 output	Hot Water	Natural Gas/#2 Fuel Oil	Boiler Room

PROPOSED CONDITIONS / MODIFICATIONS

- Isolate, remove and dispose of off-site, existing boiler and breaching, as well as associated piping and all ancillary equipment that will not be required for the new installation.
- Purchase and install three (3) Fulton Vantage 6,000 MBH boilers to be installed at the HS. and two (2) Fulton Vantage 5,000 MBH boilers to be installed at Todd ES.
- Purchase and install manufacturer accessories, including controller/sequencing system, remote cloud access, condensate drain trap, pH neutralization kit, auxiliary low-water cutoff, disconnect switch, self-calibrated smoke opacity monitor with interlock to BMS, draft damper with spill switch, oil flue cleanout (accessories to be finalized during design).
- Install all electrical wiring to make operational.
- Provide factory start-up, testing and adjustment of the new system. Instruct owner's designated operators on the operation and maintenance of the new equipment.
- Re-use existing piping to the extent possible. If existing piping is not suitable for re-use, replace piping with appropriately sized and insulated piping with fiberglass pipe insulation.
- Provide listed and approved double-wall insulated stainless-steel vent material (or as approved by AHJ) to sidewall or roof.
- Provide galvanized pipe (or as approved by AHJ) from combustion air inlet to the exterior wall, terminating with a screened weatherproof intake hood.
- Install condensate neutralization kit and pipe to the nearest drain.
- Furnish and install new primary boiler feed pumps. Pumps should be sized to match the new load of the system

B-2: HOT WATER BOILER, FULTON MODEL VANTAGE 6000DF, SIZE (MBH): 5640 OUTPUT, STEAM / HOT WATER: HOT WATER, FUEL TYPE: NATURAL ... 1.0
B-1: HOT WATER BOILER, FULTON MODEL VANTAGE 6000DF, SIZE (MBH): 5640 OUTPUT, STEAM / HOT WATER: HOT WATER, FUEL TYPE: NATURAL ... 1.0
B-3: HOT WATER BOILER, FULTON MODEL VANTAGE 6000DF, SIZE (MBH): 5640 OUTPUT, STEAM / HOT WATER: HOT WATER, FUEL TYPE: NATURAL ... 1.0
B-1: HOT WATER BOILER, FULTON MODEL VANTAGE 5000DF, SIZE (MBH): 4600 OUTPUT, STEAM / HOT WATER: HOT WATER, FUEL TYPE: NATURAL ... 1.0
B-2: HOT WATER BOILER, FULTON MODEL VANTAGE 5000DF, SIZE (MBH): 4600 OUTPUT, STEAM / HOT WATER: HOT WATER, FUEL TYPE: NATURAL ... 1.0

- Reuse existing electrical power wiring as applicable. If not suitable for reuse, replace power wiring with appropriately sized as indicated on the drawings. Provide electric power disconnect and single point power connection.

ITEM #2: REPLACE AIR COOLED CHILLER

EXISTING CONDITIONS

Energy Systems Group examined chiller replacement at the following buildings:

- Briarcliff Middle/High School

The selected subcontractor will remove two (2) existing air-cooled chillers. The contractor will replace them with two (2) high efficiency air-cooled chillers. Basis of Design: Carrier AquaForce Variable Speed Chiller or approved equal.

The Subcontractor will be responsible for all equipment, material, and installation costs for the turnkey replacement of the chillers including the final connection to the Building Management System. Product data for the chillers is provided in *Appendix A.*

All removal and installation configuration costs shall be included in the bid and be no additional cost to ESG. This includes all mechanical, electrical, plumbing, rigging, disposal, and general construction costs (architectural and structural modifications). Any modifications and relocations required to make new equipment fit shall be included; for example modifications to existing fencing, walls, and housekeeping pad to make new equipment fit in the space.

Table 1 Existing Chillers

	Chiller-1	Chiller-2
Manufacturer	Carrier	Carrier
Model Number	30GXR350-T-640WZ	30GXR350-T-640WZ
Unit Type	VFD Screw, Air cooled	VFD Screw, Air cooled
Nominal Tons	333	333
Refrigerant	R134a	R134a
IPLV	12.3	12.3
Controls	The primary pumps run at constant speed. The secondary pumps are on VSD.	The primary pumps run at constant speed. The secondary pumps are on VSD.
Voltage	460/3phase/60hz	460/3phase/60hz
MCA	694.2 amps	694.2 amps
MOCP	800 amps	800 amps

DEMO: REMOVE EXISTING AIR-COOLED CHILLER, CHILLER-1: CARRIER MODEL 30GXR350-T-640WZ, UNIT TYPE: VFD SCREW, AIR COOLED, NOMI... 1.0
DEMO: REMOVE EXISTING AIR-COOLED CHILLER, CHILLER-2: CARRIER MODEL 30GXR350-T-640WZ, UNIT TYPE: VFD SCREW, AIR COOLED, NOMI... 1.0

Table 3 Proposed New Chillers

	Chiller- 1	Chiller- 2
Manufacturer (basis of design) * or approved equal	Carrier	Carrier
Model Number	AquaForce 30XV-3506M	AquaForce 30XV-3506M
Unit Type	VFD Screw, Air cooled	VFD Screw, Air cooled
Nominal Tons	350	350
Refrigerant	R134a	R134a
IPLV	Up to 21	Up to 21
Controls	Full control package with Interface board to the existing BAS system, Capacity Optimization (Greenspeed intelligence), Install VFDs on Primary Pumps.	Full control package with Interface board to the existing BAS system, Capacity Optimization (Greenspeed intelligence), Install VFDs on Primary Pumps.
Voltage	460/3phase/60hz	460/3phase/60hz
Sound Package	Low sound kit	Low sound kit
Motor Type	Permanent magnet compressor	Permanent magnet compressor
Condenser Fans	Variable Speed	Variable Speed
Control Transformer	Yes	Yes
Non fused disconnect	Yes	Yes

PROPOSED CONDITIONS / MODIFICATIONS

- Isolate, remove and dispose of off-site, existing chiller, as well as associated piping and all ancillary equipment that will not be required for the new installation.
- Provide rigging plan along with all rigging required to remove existing chiller and install new chiller.
- The subcontractor is responsible for the proper capture and disposal of refrigerant.
- Replace the existing chiller with new as indicated on Table. All equipment shall be rated and certified in accordance with ANSI/ASHRAE/AHRI/ISO. All equipment shall be tested, investigated, and determined to comply with the requirements of the most recent standards for Heating and Cooling equipment UL- 1995 for the United States.
- Provide final selections based on field requirements, including percent glycol and chilled water temperature differentials.
- Re-use existing piping to the extent possible. If existing piping is not suitable for re-use, replace piping with appropriately sized and insulated piping with fiberglass pipe insulation and PVC jacketing. Piping outdoors shall have aluminum jacketing. Provide for each chiller:
    i. New isolation valves
    ii. Balancing valves

ITEM #2 - ALTERNATE: REPLACE AIR COOLED CHILLER – HEAT PUMP OPTION

EXISTING CONDITIONS

Energy Systems Group examined a heat pump chiller installation at the following buildings:

- Briarcliff Middle/High School

The selected subcontractor will remove two (2) existing air-cooled chillers. The contractor will replace them with three (3) high efficiency air-cooled chillers with heat pump capabilities. Basis of Design: Trane Ascend Air-Cooled Chiller ACX Heat Pump or approved equal.

The Subcontractor will be responsible for all equipment, material, and installation costs for the turnkey replacement of the chillers including the final connection to the Building Management System. Product data for the chillers is provided in *Appendix A.*

All removal and installation configuration costs shall be included in the bid and be no additional cost to ESG. This includes all mechanical, electrical, plumbing, rigging, disposal, and general construction costs (architectural and structural modifications). Any modifications and relocations required to make new equipment fit shall be included; for example modifications to existing fencing, walls, and housekeeping pad to make new equipment fit in the space.

Table 1 Existing Chillers

	Chiller- 1	Chiller-2
Manufacturer	Carrier	Carrier
Model Number	30GXR350-T-640WZ	30GXR350-T-640WZ
Unit Type	VFD Screw, Air cooled	VFD Screw, Air cooled
Nominal Tons	333	333
Refrigerant	R134a	R134a
IPLV	12.3	12.3
Controls	The primary pumps run at constant speed. The secondary pumps are on VSD.	The primary pumps run at constant speed. The secondary pumps are on VSD.
Voltage	460/3phase/60hz	460/3phase/60hz
MCA	694.2 amps	694.2 amps
MOCP	800 amps	800 amps

DEMO: REMOVE EXISTING AIR-COOLED CHILLER, CHILLER-1: CARRIER MODEL 30GXR350-T-640WZ, UNIT TYPE: VFD SCREW, AIR COOLED, NOMINAL TONS: 333, REFRIGERANT: R134A, IPLV: 12.3... 1.0
DEMO: REMOVE EXISTING AIR-COOLED CHILLER, CHILLER-2: CARRIER MODEL 30GXR350-T-640WZ, UNIT TYPE: VFD SCREW, AIR COOLED, NOMINAL TONS: 333, REFRIGERANT: R134A, IPLV: 12.3... 1.0

Table 3 Proposed New Chillers

	Chiller-1, 2, and 3
Manufacturer (basis of design) * or approved equal	Trane
Model Number	Ascend ACXA 215
Unit Type	Scroll, Air cooled
Nominal Tons	200
Refrigerant	R134a
IPLV	ASHRAE 90.1 2019 Compliant, 2.77 COP
Controls	Full control package with Interface board to the existing BAS system, Capacity Optimization, Install VFDs on Primary Pumps.
Voltage	460/3phase/60hz
Sound Package	Low sound kit
Motor Type	Permanent magnet compressor
Condenser Fans	Variable Speed
Control Transformer	Yes
Non fused disconnect single	Yes

• CHILLER-1, 2, 3: AIR-COOLED CHILLER, TRANE MODEL ASCEND ACXA 215, UNIT TYPE: SCROLL, AIR COOLED, NOMINAL TONS: 200, REFRIGERANT: R134A, IPLV: ASHRAE 90.1 2019 ... 3.0

PROPOSED CONDITIONS / MODIFICATIONS

- Isolate, remove and dispose of off-site, existing chiller, as well as associated piping and all ancillary equipment that will not be required for the new installation.
- Provide rigging plan along with all rigging required to remove existing chiller and install new chiller heat pump.
- The subcontractor is responsible for the proper capture and disposal of refrigerant.
- Replace the existing chiller with new as indicated on Table. All equipment shall be rated and certified in accordance with ANSI/ASHRAE/AHRI/ISO. All equipment shall be tested, investigated, and determined to comply with the requirements of the most recent standards for Heating and Cooling equipment UL- 1995 for the United States.
- Provide final selections based on field requirements, including percent glycol and chilled water temperature differentials.
- Re-use existing piping to the extent possible. If existing piping is not suitable for re-use, replace piping with appropriately sized and insulated piping with fiberglass pipe insulation and PVC jacketing. Piping outdoors shall have aluminum jacketing. Provide for each chiller:
    - vi. New isolation valves
    - vii. Balancing valves

ITEM #3A – ITEM #3D: REPLACE MOTORS AND INSTALL VFDs

EXISTING CONDITIONS

Energy Systems Group examined VFD and motor replacement at the following buildings:

- Briarcliff Middle/High School
- Todd Elementary School

Selected subcontractor will replace the existing variable frequency drives (VFDs) or motor starters located at Briarcliff Middle/High School and Todd Elementary School with new units of like size. The selected subcontractor will be responsible for providing the necessary addition or modification of supports, brackets, etc. for a fully functional system at the completion of the work. Subcontractor to make all necessary electrical connections to the existing equipment.

The Subcontractor will be responsible for all equipment, material, and installation costs for the turnkey replacement of the VFDs including the final connection to the Building Management System. Product data for the system is provided in *Appendix A.*

Subcontractor is to re-use existing electrical feed & wiring unless otherwise stated. All removal and installation

- DEMO: REMOVE EXISTING MOTOR W/ VFD, BALDOR MODEL HM9239T, MOTOR RATING (HP): 20. 2.0
- HHW PUMP 1: MOTOR W/ VFD, ABB ACH580 BALDOR GOLD, MOTOR RATING (HP): 20, VFD RATING (KW, VOLTS): 15, 480. 2-WAY V... 1.0
- HHW PUMP 2: MOTOR W/ VFD, ABB ACH580 BALDOR GOLD, MOTOR RATING (HP): 20, VFD RATING (KW, VOLTS): 15, 480. 2-WAY V... 1.0
- DEMO: REMOVE EXISTING MOTOR W/ VFD, BALDOR MODEL HM9232T, MOTOR RATING (HP): 10. 2.0
- DEMO: REMOVE EXISTING MOTOR W/ VFD, YASKAWA GPD 506/P5, BALDOR, HM9242T, MOTOR RATING (HP): 25. 2.0
- CHW PUMP 1: MOTOR W/ VFD, ABB ACH580 BALDOR GOLD, MOTOR RATING (HP): 10, VFD RATING (KW, VOLTS): 7.5, 480. 2-WAY ... 1.0
- CHW PUMP 2: MOTOR W/ VFD, ABB ACH580 BALDOR GOLD, MOTOR RATING (HP): 10, VFD RATING (KW, VOLTS): 7.5, 480. 2-WAY ... 1.0
- CHW PUMP 3: MOTOR W/ VFD, ABB ACH580 BALDOR GOLD, MOTOR RATING (HP): 25, VFD RATING (KW, VOLTS): 22, 480. 2-WAY V... 1.0
- CHW PUMP 4: MOTOR W/ VFD, ABB ACH580 BALDOR GOLD, MOTOR RATING (HP): 25, VFD RATING (KW, VOLTS): 22, 480. 2-WAY V... 1.0

Table 1 Variable Frequency Drives

Item #	Building Name	Location	Tag	Motor Rating (HP)	VFD Rating (kW, volts)	Existing Make & Model Number	NEW Make & Model Number
Item #3A	Briarcliff Middle/High School	Boiler Room	HHW Pump 1	20	15, 480	Baldor, HM9239T	ABB ACH580, Baldor Gold
	Briarcliff Middle/High School	Boiler Room	HHW Pump 2	20	15, 480	Baldor, HM9239T	ABB ACH580, Baldor Gold
Item #3B	Briarcliff Middle/High School	Garage	CHW Pump 1	10	7.5, 480	Baldor, HM9232T	ABB ACH580, Baldor Gold
	Briarcliff Middle/High School	Garage	CHW Pump 2	10	7.5, 480	Baldor, HM9232T	ABB ACH580, Baldor Gold
	Briarcliff Middle/High School	Garage	CHW Pump 3	25	22, 480	Yaskawa GPD 506/P5, Baldor, HM9242T	ABB ACH580, Baldor Gold
	Briarcliff Middle/High School	Garage	CHW Pump 4	25	22, 480	Yaskawa GPD 506/P5, Baldor, HM9242T	ABB ACH580, Baldor Gold

Item #3C	Todd Elementary School	Boiler Room	HHW Pump 1A	15	15, 200	US Motors, D15E2H	ABB ACH580, Baldor Gold
	Todd Elementary School	Boiler Room	HHW Pump 1	15	15, 200	US Motors, D15E2H	ABB ACH580, Baldor Gold
Item #3D	Todd Elementary School	Roof (Near Offices)	HVAC-3	15	15, 200	Century 850121MOJ	ABB ACH580, Baldor Gold
	Todd Elementary School	Roof (Near Offices)	HVAC-3	7.5	5.5, 200	Century 850121MOJ	ABB ACH580, Baldor Gold

Table 2 VFD, Motor SOW Items – Continued Table

- DEMO: REMOVE EXISTING MOTOR W/ VFD, US MOTORS, D15E2H, MOTOR RATING (HP): 15. 2.0
- HHW PUMP 1A: MOTOR W/ VFD, ABB ACH580 BALDOR GOLD, MOTOR RATING (HP): 15, VFD RATING (KW, VOLTS): 15, 200. 2-WA... 1.0
- HHW PUMP 1: MOTOR W/ VFD, ABB ACH580 BALDOR GOLD, MOTOR RATING (HP): 15, VFD RATING (KW, VOLTS): 15, 200. 2-WAY ... 1.0
- DEMO: REMOVE EXISTING MOTOR W/ VFD, CENTURY 850121MOJ, MOTOR RATING (HP): 15. 2.0
- HVAC-3: MOTOR W/ VFD, ABB ACH580 BALDOR GOLD, MOTOR RATING (HP): 15, VFD RATING (KW, VOLTS): 15, 200. 1.0
- HVAC-3: MOTOR W/ VFD, ABB ACH580 BALDOR GOLD, MOTOR RATING (HP): 7.5, VFD RATING (KW, VOLTS): 5.5, 200. 1.0

Item #3A	School							
	Briarcliff Middle/High School	Boiler Room	HHW Pump 2	20	N	Y	Y	Y
Item #3B	Briarcliff Middle/High School	Garage	CHW Pump 1	10	N	Y	Y	Y
	Briarcliff Middle/High School	Garage	CHW Pump 2	10	N	Y	Y	Y
	Briarcliff Middle/High School	Garage	CHW Pump 3	25	N	Y	Y	N
	Briarcliff Middle/High School	Garage	CHW Pump 4	25	N	Y	Y	N
Item #3C	Todd Elementary School	Boiler Room	HHW Pump 1A	15	N	Y	Y	Y
	Todd Elementary School	Boiler Room	HHW Pump 1	15	N	Y	Y	Y
Item #3D	Todd Elementary School	Roof (Near Offices)	HVAC-3	15	N	Y	Y	NA
	Todd Elementary School	Roof (Near Offices)	HVAC-3	7.5	N	Y	Y	NA

ITEM #4A & ITEM #4B: REPLACE DOMESTIC WATER HEATERS WITH HIGH EFFICIENCY CONDENSING WATER HEATERS

EXISTING CONDITIONS

Energy Systems Group examined domestic water heater replacement at the following buildings:

- Briarcliff Middle/High School
- Todd Elementary School

The selected subcontractor will remove two (2) existing domestic hot water heaters with one (1) shared 150-gallon storage tank, and two (2) tank-style domestic water heaters. The contractor will replace them with four (4) tank-style high efficiency-condensing water heaters. Basis of Design: State Modulating Ultra Force and PVI Conquest natural gas water heaters or approved equals.

The Subcontractor will be responsible for all equipment, material, and installation costs for the turnkey replacement of the water heaters including the final connection to the Building Management System. Product data for the water heaters is provided in *Appendix A.*

All removal and installation configuration costs shall be included in the bid and be no additional cost to ESG. This includes all mechanical, electrical, plumbing, and general construction costs (architectural and structural modifications). Any modifications and relocations required to make new equipment fit in the space shall be included.

Table 1 Existing Water Heaters

Building Name	Tag	Manufacturer	Model Number	Size (MBH)	Tank Capacity	Fuel Type	Location Name
Briarcliff MHS	WH-1	Raypak	WH3-0652	~520 output	150 (total serving WH-1 & WH-2)	Natural Gas	Boiler Room
Briarcliff MHS	WH-2	Raypak	WH3-0652	~520 output	150 (total serving WH-1 & WH-2)	Natural Gas	Boiler Room
Todd ES	WH-1	A.O. Smith	BTR 200A 118	~292 output	100	Natural Gas	Boiler Room
Todd ES	WH-2	A.O. Smith	BTR 200A 118	~292 output	100	Natural Gas	Boiler Room

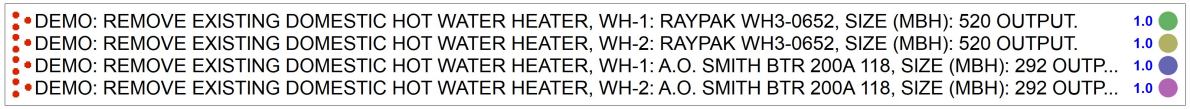
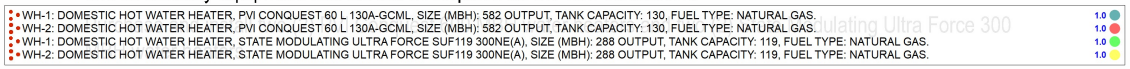


Table 2 Proposed NEW Water Heaters

Building Name	Tag	Manufacturer	Model Number	Size (MBH)	Tank Capacity	Fuel Type	Location Name
Briarcliff MHS	WH-1	PVI	Conquest 60 L 130A-GCML	582 output	130	Natural Gas	Boiler Room
Briarcliff MHS	WH-2	PVI	Conquest 60 L 130A-GCML	582 output	130	Natural Gas	Boiler Room
Todd ES	WH-1	State	Modulating Ultra Force SUF119 300NE(A)	288 output	119	Natural Gas	Boiler Room
Todd ES	WH-2	State	Modulating Ultra Force SUF119 300NE(A)	288 output	119	Natural Gas	Boiler Room

PROPOSED CONDITIONS / MODIFICATIONS

- Isolate, remove and dispose of off-site, existing water heaters, tank and breaching, as well as associated piping and all ancillary equipment that will not be required for the new installation.



- Purchase and install manufacturer accessories, including vent kits, condensate neutralization kits, leak detection kits, and drain pans.
- Install all electrical wiring to make operational.
- Provide factory start-up, testing and adjustment of the new system. Instruct owner's designated operators on the operation and maintenance of the new equipment.
- Re-use existing piping to the extent possible. If existing piping is not suitable for re-use, replace piping with appropriately sized and insulated piping with fiberglass pipe insulation.
- Provide listed and approved stainless-steel vent material (or as approved by AHJ) to sidewall or roof.
- Provide galvanized pipe (or as approved by AHJ) from combustion air inlet to the exterior wall, terminating with a screened weatherproof intake hood.
- Install piping from condensate neutralization kit to the nearest drain.
- New isolation, balancing, check, and mixing valves as required for a fully functioning system.
- Reuse existing electrical power wiring as applicable. If not suitable for reuse, replace power wiring with appropriately sized as indicated on the drawings. Provide electric power disconnect and single point power connection.
- Reuse existing housekeeping pads, retrofit as applicable. If not suitable for reuse, replace housekeeping pads.
- Pressure-test piping for leaks; fill, clean, sanitize, and provide test & balance report to ESG.
- All necessary tie-ins for water, electrical, natural gas, etc. are the responsibility of the Subcontractor. All general trade requirements such as cutting, patching, painting, and housekeeping pads are also the responsibility of the Subcontractor. Architectural surfaces damaged or modified during installation shall be restored to like new condition.

CLARIFICATIONS AND EXCLUSIONS

- Selected subcontractor to coordinate tie-in of new equipment controls with controls contractor.

ITEM #4 (ALTERNATE) – INSTALL NEW INSTANTANEOUS DOMESTIC HOT WATER HEATERS

EXISTING CONDITIONS

Energy Systems Group examined domestic water heater installation at the following buildings:

- Todd Elementary School

The selected subcontractor will leave in place two (2) existing tank-style domestic water heaters. The contractor will install two (2) tankless high efficiency condensing water heaters and will utilize the existing tank-style domestic water heaters as primary storage and only utilize the existing heating capability as a backup. Basis of Design: Rinnai CU199i Internal Condensing Tankless Water Heater or approved equals.

The Subcontractor will be responsible for all equipment, material, and installation costs for the turnkey replacement of the water heaters except for the final connection to the Building Management System. Product data for the water heaters is provided in *Appendix A*.

All installation configuration costs shall be included in the bid and be no additional cost to ESG. This includes all mechanical, electrical, plumbing, and general construction costs (architectural and structural modifications). Any modifications and relocations required to make new equipment fit in the space shall be included.

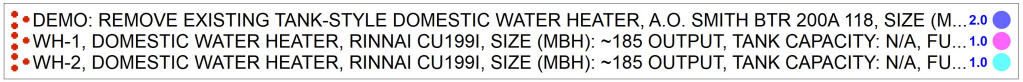
The installation of the tankless water heaters may be wall-mounted if space is available, or installed using a racking system if there is inadequate clearance.

Table 1 Existing Water Heaters

Building Name	Tag	Manufacturer	Model Number	Size (MBH)	Tank Capacity	Fuel Type	Location Name
Todd ES	WH-1	A.O. Smith	BTR 200A 118	~292 output	100	Natural Gas	Boiler Room
Todd ES	WH-2	A.O. Smith	BTR 200A 118	~292 output	100	Natural Gas	Boiler Room

Table 2 Proposed NEW Water Heaters

Building Name	Tag	Manufacturer	Model Number	Size (MBH)	Tank Capacity	Fuel Type	Location Name
Todd ES	WH-1	Rinnai	CU199i	185 output	N/A	Natural Gas	Boiler Room
Todd ES	WH-2	Rinnai	CU199i	185 output	N/A	Natural Gas	Boiler Room



ITEM #5 – REPLACE ROOTFOP UNITS

EXISTING CONDITIONS

Energy Systems Group examined rooftop unit replacement at the following buildings:

- Briarcliff Middle/High School
- Todd Elementary School

The selected subcontractor will remove two (2) existing rooftop units from Briarcliff MHS and three (3) existing rooftop units from Todd ES. The contractor will replace them one-for-one with high efficiency rooftop units. Basis of Design: Carrier WeatherMaker 50FCQ Packaged Heat Pump Rooftop Units or approved equal.

The Subcontractor will be responsible for all equipment, material, and installation costs for the turnkey replacement of the rooftop units except for the final connection to the Building Management System. Product data for the rooftop units is provided in *Appendix A.*

All removal and installation configuration costs shall be included in the bid and be no additional cost to ESG. This includes all mechanical, electrical, plumbing, rigging, disposal, and general construction costs (architectural and structural modifications). Any modifications and relocations required to make new equipment fit shall be included; for example modifications to existing fencing, walls, and housekeeping pad to make new equipment fit in the space.

Table 1 Briarcliff MHS Existing RTUs

	RTU 1 and RTU 2
Manufacturer	Weatherking
Model Number	WLMA-A048CL
Unit Type	DX, Cooling Only
Nominal Tons	4
CFM	1,600
Refrigerant	R22
Estimated IEER	11.0
Controls	Constant Speed, Local Thermostat
Voltage	208/3phase/60hz

Table 2 Todd ES Existing RTUs

	RTU 1, 2, and 3
Manufacturer	Carrier
Model Number	50TFF005-A-511HQ
Unit Type	DX, Cooling Only
Nominal Tons	4
CFM	1,600
Refrigerant	R22
Estimated IEER	11.0
Controls	Constant Speed, Local Thermostat
Voltage	208/3phase/60hz

Table 3 Proposed New RTUs

	Briarcliff MHS & Todd ES RTUs, Five (5) Total Units
Manufacturer (basis of design) * or approved equal	Carrier
Model Number	WeatherMaker 50FCQ
Unit Type	Heat Pump
Nominal Tons	4
CFM	1,600
Refrigerant	R410a
IEER / COP	15.0 / 3.6
Controls	Compatible with conventional thermostat controls. Tie in to BMS. Electronically commutated and variable speed motor.
Voltage	208/3phase/60hz

RTU Recommended Mechanical Scope of Work

For the identified units, it is recommended to remove and replace the outdated unit with new, equivalently sized high efficiency units with variable speed fan controls.

- Verify size, capacity, and airflow requirements of equipment to be removed and installed.
- Disconnect electrical components back to the nearest junction box or conduit fit for reuse per the National Electric Code as required to facilitate installation of air handler.
- Disconnect, remove, and properly dispose of existing RTUs.
- Install new RTUs to replace the existing equipment.
- Install curb adaptor as required to match existing roof penetration.
- Reconnect ductwork and electrical wiring to new units.
- Install new electrical disconnect safety switch.
- Balance unit to new airflow required. Reconnect ductwork and provide proper ventilation air to the served space.
- Provide equipment startup, commissioning, and final report.

CLARIFICATIONS AND EXCLUSIONS

- Subcontractor to coordinate tie-in of new equipment controls with Controls contractor.
- Subcontractor to exclude repair or replacement of defective equipment, except the equipment described above.
- Subcontractor to exclude repair or upgrades required to bring electrical and mechanical systems up to code, other than those specifically included in this Scope of Work.
- Subcontractor to exclude upgrade of the main distribution panel unless otherwise specified in the Scope of Work or Mechanical/electrical drawings.

PROJECT NAME: ******** SCHOOL DISTRICT**

BID RECAP

SR. NO.	DESCRIPTION	MATERIAL COST	LABOR COST	MATERIAL TAX	LABOR TAX	TOTAL COST	OVERHEADS	PROFITS
1	ITEM #1A - HS/MS	US$ 144,921.00	US$ 35,478.14	US$ -	US$ -	US$ 180,399.14	US$ 18,039.91	US$ 27,059.87
2	ITEM #1B - TODD ES	US$ 81,170.40	US$ 22,251.34	US$ -	US$ -	US$ 103,421.74	US$ 10,342.17	US$ 15,513.26
3	ITEM #2A - HS/MS	US$ 477,490.00	US$ 66,493.44	US$ -	US$ -	US$ 543,983.44	US$ 54,398.34	US$ 81,597.52
4	ITEM #2B (ALTERNATE) - HS/MS	US$ 268,231.50	US$ 77,575.68	US$ -	US$ -	US$ 345,807.18	US$ 34,580.72	US$ 51,871.08
5	ITEM #3A - MS/HS	US$ 25,620.00	US$ 3,444.48	US$ -	US$ -	US$ 29,064.48	US$ 2,906.45	US$ 4,359.67
6	ITEM #3B - MS/HS	US$ 48,499.00	US$ 6,652.34	US$ -	US$ -	US$ 55,151.34	US$ 5,515.13	US$ 8,272.70
7	ITEM #3C - TODD ES	US$ 20,679.00	US$ 3,069.75	US$ -	US$ -	US$ 23,748.75	US$ 2,374.87	US$ 3,562.31
8	ITEM #3D - MS/HS ROOF	US$ 19,542.50	US$ 2,950.44	US$ -	US$ -	US$ 22,492.94	US$ 2,249.29	US$ 3,373.94
9	ITEM #4A - MS/HS	US$ 31,084.00	US$ 5,761.77	US$ -	US$ -	US$ 36,845.77	US$ 3,684.58	US$ 5,526.86
10	ITEM #4B - TODD ES	US$ 17,761.80	US$ 4,883.84	US$ -	US$ -	US$ 22,645.64	US$ 2,264.56	US$ 3,396.85
11	ITEM #4A (ALTERNATE) - MS/HS	US$ 15,189.00	US$ 3,457.63	US$ -	US$ -	US$ 18,646.63	US$ 1,864.66	US$ 2,796.99
12	ITEM #5 - BRIARCLIFF HS/MS	US$ 10,539.46	US$ 6,307.06	US$ -	US$ -	US$ 16,846.52	US$ 1,684.65	US$ 2,526.98
13	ITEM #5 - TODD ES	US$ 15,809.19	US$ 9,210.24	US$ -	US$ -	US$ 25,019.43	US$ 2,501.94	US$ 3,752.91
	TOTALS	**US$ 1,176,536.85**	**US$247,536.14**	**US$ -**	**US$ -**	**US$ 1,424,072.99**	**US$142,407.30**	**US$213,610.95**

BID SUMMARY

1	**TOTAL MATERIAL COST**		**US$ 1,176,536.85**
	MATERIAL SALES TAX		US$ -
	JOB EXPENSE		US$ -
2	**TOTAL LABOR COST**		**US$ 247,536.14**
	LABOR TAX		US$ -
3	**TOTAL COST**		**US$ 1,424,072.99**
	PROFIT @	**15%**	US$ 213,610.95
	OVERHEADS @	**10%**	US$ 142,407.30
4	**TOTAL COST WITH OVERHEADS + PROFIT**		**US$ 1,780,091.24**
	BID SECURITY		US$ -
	ALLOWANCES		US$ -
	MOBILIZATION / DEMOBILIZATION		US$ -
	SUB-CONTRACTS		US$ -
	BOND PREMIUM		US$ -
5	**BASE BID PRICE**		US$ 1,780,091.24

MAN-LOADING AND SUPERVISION ANALYSIS

1	TOTAL MANHOURS WITH SUPERVISION	
2	NUMBER OF MAN-DAYS	
3	MAN LOAD	
4	HVAC MECHANIC RATE	3
5	SUPERVISOR RATE	1
6	UNSKILLED LABOR RATE	1
7	COMPOSITE LABOR RATE	
8	PREVAILING WAGE RATE	

INSERT VALUES IN YELLOW HIGHLIGHTED CELLS WHERE

TOTAL PRICE	
US$	225,498.93
US$	129,277.18
US$	679,979.30
US$	432,258.98
US$	36,330.60
US$	68,939.17
US$	29,685.93
US$	28,116.17
US$	46,057.21
US$	28,307.05
US$	23,308.28
US$	21,058.15
US$	31,274.29
US$ 1,780,091.24	

2,975
372
5
US$ 84.00
US$ 110.00
US$ 54.00
US$ 83.20
N/A

APPLICABLE

BIDSMART	PROJECT NAME: ********** SCHOOL DISTRICT	TOTAL BID PRICE	US$ 1,780,091

												ADD QUOTATION FOR EQUIPMENTS					
SR. NO.	ITEM NO.	SUB-ITEM NO.	DESCRIPTION	QUANTITY	WASTAGE	QTY WITH WASTAGE	UNIT	UNIT MATERIAL COST	MATERIAL COST	MANHOUR RATE	UNIT MANHOURS	TOTAL MANHOURS	MANHOURS COST	TOTAL COST			
EQUIPMENTS										US$ 83.20							
BOILERS																	
1	ITEM NO. 1	1A	B-1: HOT WATER BOILER, FULTON MODEL VANTAGE 6000DF, SIZE (MBH): 5640 OUTPUT, STEAM / HOT WATER: HOT	1	0%	1	EA	US$ 48,307.00	US$ 48,307.00	US$ 83.20	103.00	103.00	US$ 8,569.60	US$ 56,877			
2			B-2: HOT WATER BOILER, FULTON MODEL VANTAGE 6000DF, SIZE (MBH): 5640 OUTPUT, STEAM / HOT WATER: HOT	1	0%	1	EA	US$ 48,307.00	US$ 48,307.00	US$ 83.20	103.00	103.00	US$ 8,569.60	US$ 56,877			
3			B-3: HOT WATER BOILER, FULTON MODEL VANTAGE 6000DF, SIZE (MBH): 5640 OUTPUT, STEAM / HOT WATER: HOT	1	0%	1	EA	US$ 48,307.00	US$ 48,307.00	US$ 83.20	103.00	103.00	US$ 8,569.60	US$ 56,877			
DEMOLITION																	
1	ITEM NO. 1	1A	REMOVE EXISTING HOT WATER BOILER, B-1: WEIL MCLAIN MODEL 94 SERIES 3 2394, SIZE (MBH): 5557 OUTPUT, ST	1	0%	1	EA	US$ -	US$ -	US$ 83.20	39.14	39.14	US$ 3,256.45	US$ 3,256			
2			REMOVE EXISTING HOT WATER BOILER, B-2: WEIL MCLAIN MODEL 94 SERIES 3 2394, SIZE (MBH): 5557 OUTPUT, ST	1	0%	1	EA	US$ -	US$ -	US$ 83.20	39.14	39.14	US$ 3,256.45	US$ 3,256			
3			REMOVE EXISTING HOT WATER BOILER, B-3: WEIL MCLAIN MODEL 94 SERIES 3 2394, SIZE (MBH): 5557 OUTPUT, ST	1	0%	1	EA	US$ -	US$ -	US$ 83.20	39.14	39.14	US$ 3,256.45	US$ 3,256			
						SUBTOTAL MATERIAL		*US$ 144,921.00*	*SUBTOTAL LABOR*		*US$ 35,478.14*	*SUBTOTAL HOURS*		*426.42*	*US$ 180,399*		
BOILERS																	
1	ITEM NO. 1	1B	B-1: HOT WATER BOILER, FULTON MODEL VANTAGE 5000DF, SIZE (MBH): 4600 OUTPUT, STEAM / HOT WATER: HOT	1	0%	1	EA	US$ 40,585.20	US$ 40,585.20	US$ 83.20	96.90	96.90	US$ 8,062.08	US$ 48,647			
2			B-2: HOT WATER BOILER, FULTON MODEL VANTAGE 5000DF, SIZE (MBH): 4600 OUTPUT, STEAM / HOT WATER: HOT	1	0%	1	EA	US$ 40,585.20	US$ 40,585.20	US$ 83.20	96.90	96.90	US$ 8,062.08	US$ 48,647			
DEMOLITION																	
1	ITEM NO. 1	1B	REMOVE EXISTING HOT WATER BOILER, B-1: SMITH MODEL 28A-W-18, SIZE (MBH): 4025 OUTPUT, STEAM / HOT W	1	0%	1	EA	US$ -	US$ -	US$ 83.20	36.82	36.82	US$ 3,063.59	US$ 3,064			
2			REMOVE EXISTING HOT WATER BOILER, B-2: WEIL MCLAIN MODEL 88 SERIES 1 1888, SIZE (MBH): 4025 OUTPUT, ST	1	0%	1	EA	US$ -	US$ -	US$ 83.20	36.82	36.82	US$ 3,063.59	US$ 3,064			
						SUBTOTAL MATERIAL		*US$ 81,170.40*	*SUBTOTAL LABOR*		*US$ 22,251.34*	*SUBTOTAL HOURS*		*267.44*	*US$ 103,422*		
AIR-COOLED CHILLER																	
1	ITEM NO. 2	2A	CHILLER-1: AIR-COOLED CHILLER, CARRIER MODEL AQUAFORCE 30XV-3506M, UNIT TYPE: VFD SCREW, AIR COOLED	1	0%	1	EA	US$ 238,745.00	US$ 238,745.00	US$ 83.20	296.00	296.00	US$ 24,627.20	US$ 263,372			
2			CHILLER-2: AIR-COOLED CHILLER, CARRIER MODEL AQUAFORCE 30XV-3506M, UNIT TYPE: VFD SCREW, AIR COOLED	1	0%	1	EA	US$ 238,745.00	US$ 238,745.00	US$ 83.20	296.00	296.00	US$ 24,627.20	US$ 263,372			
DEMOLITION																	
1	ITEM NO. 2	2A	REMOVE EXISTING AIR-COOLED CHILLER, CHILLER-1: CARRIER MODEL 30GXR350-T-640WZ, UNIT TYPE: VFD SCREW	1	0%	1	EA	US$ -	US$ -	US$ 83.20	103.60	103.60	US$ 8,619.52	US$ 8,620			
2			REMOVE EXISTING AIR-COOLED CHILLER, CHILLER-2: CARRIER MODEL 30GXR350-T-640WZ, UNIT TYPE: VFD SCREW	1	0%	1	EA	US$ -	US$ -	US$ 83.20	103.60	103.60	US$ 8,619.52	US$ 8,620			
						SUBTOTAL MATERIAL		*US$ 477,490.00*	*SUBTOTAL LABOR*		*US$ 66,493.44*	*SUBTOTAL HOURS*		*799.20*	*US$ 543,983*		
AIR-COOLED CHILLER																	
1	ITEM NO. 2	2B	CHILLER-1, 2, 3: AIR-COOLED CHILLER, TRANE MODEL ASCEND ACXA 215, UNIT TYPE: SCROLL, AIR COOLED, NOMIN	3	0%	3	EA	US$ 89,410.50	US$ 268,231.50	US$ 83.20	252.00	756.00	US$ 62,899.20	US$ 331,131			
DEMOLITION																	
1	ITEM NO. 2	2B	REMOVE EXISTING AIR-COOLED CHILLER, CHILLER-1: CARRIER MODEL 30GXR350-T-640WZ, UNIT TYPE: VFD SCREW	1	0%	1	EA	US$ -	US$ -	US$ 83.20	88.20	88.20	US$ 7,338.24	US$ 7,338			
2			REMOVE EXISTING AIR-COOLED CHILLER, CHILLER-2: CARRIER MODEL 30GXR350-T-640WZ, UNIT TYPE: VFD SCREW	1	0%	1	EA	US$ -	US$ -	US$ 83.20	88.20	88.20	US$ 7,338.24	US$ 7,338			
						SUBTOTAL MATERIAL		*US$ 268,231.50*	*SUBTOTAL LABOR*		*US$ 77,575.68*	*SUBTOTAL HOURS*		*932.40*	*US$ 345,807*		
MOTOR W/ VFD																	
1	ITEM NO. 3	3A	HHW PUMP 1: MOTOR W/ VFD, ABB ACH580 BALDOR GOLD, MOTOR RATING (HP): 20, VFD RATING (KW, VOLTS): 19	1	0%	1	EA	US$ 12,810.00	US$ 12,810.00	US$ 83.20	15.00	15.00	US$ 1,248.00	US$ 14,058			
2			HHW PUMP 2: MOTOR W/ VFD, ABB ACH580 BALDOR GOLD, MOTOR RATING (HP): 20, VFD RATING (KW, VOLTS): 19	1	0%	1	EA	US$ 12,810.00	US$ 12,810.00	US$ 83.20	15.00	15.00	US$ 1,248.00	US$ 14,058			
DEMOLITION																	
1	ITEM NO. 3	3A	REMOVE EXISTING MOTOR W/ VFD, BALDOR MODEL HM9239T, MOTOR RATING (HP): 20.	2	0%	2	EA	US$ -	US$ -	US$ 83.20	5.70	11.40	US$ 948.48	US$ 948			
						SUBTOTAL MATERIAL		*US$ 25,620.00*	*SUBTOTAL LABOR*		*US$ 3,444.48*	*SUBTOTAL HOURS*		*41.40*	*US$ 29,064*		
MOTOR W/ VFD																	
1	ITEM NO. 3	3B	CHW PUMP 1: MOTOR W/ VFD, ABB ACH580 BALDOR GOLD, MOTOR RATING (HP): 10, VFD RATING (KW, VOLTS): 7.	1	0%	1	EA	US$ 9,339.50	US$ 9,339.50	US$ 83.20	10.31	10.31	US$ 857.63	US$ 10,197			
2			CHW PUMP 2: MOTOR W/ VFD, ABB ACH580 BALDOR GOLD, MOTOR RATING (HP): 10, VFD RATING (KW, VOLTS): 7.	1	0%	1	EA	US$ 9,339.50	US$ 9,339.50	US$ 83.20	10.31	10.31	US$ 857.63	US$ 10,197			
3			CHW PUMP 3: MOTOR W/ VFD, ABB ACH580 BALDOR GOLD, MOTOR RATING (HP): 25, VFD RATING (KW, VOLTS): 22	1	0%	1	EA	US$ 14,910.00	US$ 14,910.00	US$ 83.20	16.50	16.50	US$ 1,372.80	US$ 16,283			
4			CHW PUMP 4: MOTOR W/ VFD, ABB ACH580 BALDOR GOLD, MOTOR RATING (HP): 25, VFD RATING (KW, VOLTS): 22	1	0%	1	EA	US$ 14,910.00	US$ 14,910.00	US$ 83.20	16.50	16.50	US$ 1,372.80	US$ 16,283			

DEMOLITION																	
1	ITEM NO. 3	3B	REMOVE EXISTING MOTOR W/ VFD, BALDOR MODEL HM9232T, MOTOR RATING (HP): 10.	2	0%	2	EA	US$ -	US$ -	US$ 83.20	5.50	11.00	US$ 915.20	US$ 915			
2			REMOVE EXISTING MOTOR W/ VFD, YASKAWA GPD 506/P5, BALDOR, HM9242T, MOTOR RATING (HP): 25	2	0%	2	EA	US$ -	US$ -	US$ 83.20	7.67	15.34	US$ 1,276.29	US$ 1,276			
						SUBTOTAL MATERIAL		***US$ 48,499.00***	***SUBTOTAL LABOR***		***US$ 6,652.34***	***SUBTOTAL HOURS***		***79.96***	***US$ 55,151***		
MOTOR W/ VFD																	
1	ITEM NO. 3	3C	HHW PUMP 1A: MOTOR W/ VFD, ABB ACH580 BALDOR GOLD, MOTOR RATING (HP): 15, VFD RATING (KW, VOLTS):	1	0%	1	EA	US$ 10,339.50	US$ 10,339.50	US$ 83.20	12.31	12.31	US$ 1,024.03	US$ 11,364			
2			HHW PUMP 1: MOTOR W/ VFD, ABB ACH580 BALDOR GOLD, MOTOR RATING (HP): 15, VFD RATING (KW, VOLTS): 15	1	0%	1	EA	US$ 10,339.50	US$ 10,339.50	US$ 83.20	12.31	12.31	US$ 1,024.03	US$ 11,364			
DEMOLITION																	
1	ITEM NO. 3	3C	REMOVE EXISTING MOTOR W/ VFD, US MOTORS, D15E2H, MOTOR RATING (HP): 15.	2	0%	2	EA	US$ -	US$ -	US$ 83.20	6.14	12.28	US$ 1,021.70	US$ 1,022			
						SUBTOTAL MATERIAL		***US$ 20,679.00***	***SUBTOTAL LABOR***		***US$ 3,069.75***	***SUBTOTAL HOURS***		***36.90***	***US$ 23,749***		
MOTOR W/ VFD																	
1	ITEM NO. 3	3D	HVAC-3: MOTOR W/ VFD, ABB ACH580 BALDOR GOLD, MOTOR RATING (HP): 15, VFD RATING (KW, VOLTS): 15, 200.	1	0%	1	EA	US$ 10,667.00	US$ 10,667.00	US$ 83.20	12.99	12.99	US$ 1,080.77	US$ 11,748			
2			HVAC-3: MOTOR W/ VFD, ABB ACH580 BALDOR GOLD, MOTOR RATING (HP): 7.5, VFD RATING (KW, VOLTS): 5.5, 200	1	0%	1	EA	US$ 8,875.50	US$ 8,875.50	US$ 83.20	9.41	9.41	US$ 783.08	US$ 9,659			
DEMOLITION																	
1	ITEM NO. 3	3D	REMOVE EXISTING MOTOR W/ VFD, CENTURY 850121MOJ, MOTOR RATING (HP): 15.	2	0%	2	EA	US$ -	US$ -	US$ 83.20	6.53	13.06	US$ 1,086.59	US$ 1,087			
						SUBTOTAL MATERIAL		***US$ 19,542.50***	***SUBTOTAL LABOR***		***US$ 2,950.44***	***SUBTOTAL HOURS***		***35.46***	***US$ 22,493***		
WATER HEATERS																	
1	ITEM NO. 4	4A	WH-1: DOMESTIC HOT WATER HEATER, PVI CONQUEST 60 L 130A-GCML, SIZE (MBH): 582 OUTPUT, TANK CAPACITY	1	0%	1	EA	US$ 15,542.00	US$ 15,542.00	US$ 83.20	24.86	24.86	US$ 2,068.10	US$ 17,610			
2			WH-2: DOMESTIC HOT WATER HEATER, PVI CONQUEST 60 L 130A-GCML, SIZE (MBH): 582 OUTPUT, TANK CAPACITY	1	0%	1	EA	US$ 15,542.00	US$ 15,542.00	US$ 83.20	24.88	24.88	US$ 2,069.60	US$ 17,612			
DEMOLITION																	
1	ITEM NO. 4	4A	REMOVE EXISTING DOMESTIC HOT WATER HEATER, WH-1: RAYPAK WH3-0652, SIZE (MBH): 520 OUTPUT.	1	0%	1	EA	US$ -	US$ -	US$ 83.20	9.76	9.76	US$ 812.03	US$ 812			
2			REMOVE EXISTING DOMESTIC HOT WATER HEATER, WH-2: RAYPAK WH3-0652, SIZE (MBH): 520 OUTPUT.	1	0%	1	EA	US$ -	US$ -	US$ 83.20	9.76	9.76	US$ 812.03	US$ 812			
						SUBTOTAL MATERIAL		***US$ 31,084.00***	***SUBTOTAL LABOR***		***US$ 5,761.77***	***SUBTOTAL HOURS***		***69.25***	***US$ 36,846***		
WATER HEATERS																	
1	ITEM NO. 4	4B	WH-1: DOMESTIC HOT WATER HEATER, STATE MODULATING ULTRA FORCE SUF119 300NE(A), SIZE (MBH): 288 OUT	1	0%	1	EA	US$ 8,880.90	US$ 8,880.90	US$ 83.20	20.00	20.00	US$ 1,664.00	US$ 10,545			
2			WH-2: DOMESTIC HOT WATER HEATER, STATE MODULATING ULTRA FORCE SUF119 300NE(A), SIZE (MBH): 288 OUT	1	0%	1	EA	US$ 8,880.90	US$ 8,880.90	US$ 83.20	20.00	20.00	US$ 1,664.00	US$ 10,545			
DEMOLITION																	
1	ITEM NO. 4	4B	REMOVE EXISTING DOMESTIC HOT WATER HEATER, WH-1: A.O. SMITH BTR 200A 118, SIZE (MBH): 292 OUTPUT.	1	0%	1	EA	US$ -	US$ -	US$ 83.20	9.35	9.35	US$ 777.92	US$ 778			
2			REMOVE EXISTING DOMESTIC HOT WATER HEATER, WH-2: A.O. SMITH BTR 200A 118, SIZE (MBH): 292 OUTPUT.	1	0%	1	EA	US$ -	US$ -	US$ 83.20	9.35	9.35	US$ 777.92	US$ 778			
						SUBTOTAL MATERIAL		***US$ 17,761.80***	***SUBTOTAL LABOR***		***US$ 4,883.84***	***SUBTOTAL HOURS***		***58.70***	***US$ 22,646***		
INSTANTANEOUS DOMESTIC HTO WATER HEATER																	
1	ITEM NO. 4 ALTERNATE	4A	WH-1, DOMESTIC WATER HEATER, RINNAI CU199I, SIZE (MBH): ~185 OUTPUT, TANK CAPACITY: N/A, FUEL TYPE: NA	1	0%	1	EA	US$ 7,594.50	US$ 7,594.50	US$ 83.20	11.43	11.43	US$ 950.89	US$ 8,545			
2			WH-2, DOMESTIC WATER HEATER, RINNAI CU199I, SIZE (MBH): ~185 OUTPUT, TANK CAPACITY: N/A, FUEL TYPE: NA	1	0%	1	EA	US$ 7,594.50	US$ 7,594.50	US$ 83.20	11.43	11.43	US$ 950.89	US$ 8,545			
DEMOLITION																	
1	ITEM NO. 4 ALTERNATE	4A	REMOVE EXISTING TANK-STYLE DOMESTIC WATER HEATER, A.O. SMITH BTR 200A 118, SIZE (MBH): ~292 OUTPUT.	2	0%	2	EA	US$ -	US$ -	US$ 83.20	9.35	18.70	US$ 1,555.84	US$ 1,556			
						SUBTOTAL MATERIAL		***US$ 15,189.00***	***SUBTOTAL LABOR***		***US$ 3,457.63***	***SUBTOTAL HOURS***		***41.56***	***US$ 18,647***		
ROOFTOP UNITS																	
1	ITEM NO. 5	BRIARCLIFF HS/ MS	NEW RTU: CARRIER WEATHERMAKER 50FCQ, UNIT TYPE: HEAT PUMP, NOMINAL TONS: 4, CFM: 1600, REFRIGERAN	2	0%	2	EA	US$ 5,269.73	US$ 10,539.46	US$ 83.20	26.40	52.81	US$ 4,393.46	US$ 14,933			
DEMOLITION																	
1	ITEM NO. 5	BRIARCLIFF HS/ MS	REMOVE EXISTING ROOFTOP UNIT, WEATHERKING WLMA-A048CL, UNIT TYPE: DX, COOLING ONLY, NOMINAL TONS	2	0%	2	EA	US$ -	US$ -	US$ 83.20	11.50	23.00	US$ 1,913.60	US$ 1,914			
						SUBTOTAL MATERIAL		***US$ 10,539.46***	***SUBTOTAL LABOR***		***US$ 6,307.06***	***SUBTOTAL HOURS***		***75.81***	***US$ 16,847***		
ROOFTOP UNITS																	

1	ITEM NO. 5	TODD ES	NEW RTU: CARRIER WEATHERMAKER 50FCQ, UNIT TYPE: HEAT PUMP, NOMINAL TONS: 4, CFM: 1600, REFRIGERAN	3	0%	3	EA	US$ 5,269.73	US$ 15,809.19	US$ 83.20	26.40	79.20	US$ 6,589.44	US$ 22,399		
DEMOLITION																
1	ITEM NO. 5	TODD ES	REMOVE EXISTING ROOFTOP UNIT, CARRIER 50TFF005-A-511HQ, UNIT TYPE: DX, COOLING ONLY, NOMINAL TONS:	3	0%	3	EA	US$ -	US$ -	US$ 83.20	10.50	31.50	US$ 2,620.80	US$ 2,621		
						SUBTOTAL MATERIAL		***US$ 15,809.19***	***SUBTOTAL LABOR***		***US$ 9,210.24***	***SUBTOTAL HOURS***		***110.70***	***US$ 25,019***	
													TOTAL MATERIAL COST	**US$**	**1,176,537**	
													TOTAL LABOR COST	**US$**	**247,536**	
													TOTAL LABOR HOURS		**2,975**	

SCOPE OF ESTIMATE:	
SR. NO.	**SUPPLY & INSTALLATION**
1	EQUIPMENTS
2	DEMOLITION
SR. NO.	**INCLUSIONS**
1	THE ESTIMATE INCLUDES THE INFORMATION SHOWN ONLY ON THE DRAWINGS
2	THE ESTIMATE INCLUDES MATERIAL PRICES (EXCEPT FOR QUOTED ITEMS)
3	INCLUDES LABOR HOURS FOR INSTALLATION FOR ALL ITEMS
SR. NO.	**EXCLUSIONS**
1	FIRESTOPPING IS NOT INCLUDED FOR WALL PENETRATION
2	PERMITS AND FEES
SR. NO.	**NOTES**
1	
2	

Installation Services Quote Breakdown

Project/Proposal Name: **SD
Contractor Company Name:
Primary Contact Name:
Phone:
E-mail:

	Item # 1		Item #2		Item #3				Item #4		Item #4 - (Alternate)	Item #5	
Cost Breakdown	**Item #1A: Replace Hot Water Boilers - High School / Middle School**	**Item #1B: Replace Hot Water Boilers - Todd ES**	**Item #2A: Replace Air Cooled Chillers - HS/MS**	**Item #2B (Alternate): Replace Air Cooled Chillers with new Heat Pump Chillers - HS/MS**	**Item #3A: VFDs on (2) HWPs - MS/HS**	**Item #3B: VFDs on (4) CHWPs - MS/HS**	**Item #3C: VFDs on (2) HWPs - Todd ES**	**Item #3D: VFDs on (2) Fans - MS/ HS Roof**	**Item #4A: Replace Domestic Water Heaters with High Efficiency Condensing Water Heaters - MS/HS**	**Item #4B: Replace Domestic Water Heaters with High Efficiency Condensing Water Heaters - Todd ES**	**Item #4A - Alternate: Install New Instantaneous Domestic Hot Water Heaters - MS/HS**	**Item #5: Replace RTUs - Briarcliff HS/MS**	**Item #5: Replace RTUs - Todd ES**
Labor Costs	US$ 35,478	US$ 22,251	US$ 66,493	US$ 77,576	US$ 3,444	US$ 6,652	US$ 3,070	US$ 2,950	US$ 5,762	US$ 4,884	US$ 3,458	US$ 6,307	US$ 9,210
Material Cost	US$ 144,921	US$ 81,170	US$ 477,490	US$ 268,232	US$ 25,620	US$ 48,499	US$ 20,679	US$ 19,543	US$ 31,084	US$ 17,762	US$ 15,189	US$ 10,539	US$ 15,809
Major Equipment													
Subcontracts													
OH/Profit/General Conditions	US$ 45,100	US$ 25,855	US$ 135,996	US$ 86,452	US$ 7,266	US$ 13,788	US$ 5,937	US$ 5,623	US$ 9,211	US$ 5,661	US$ 4,662	US$ 4,212	US$ 6,255
Shipping/Transportation/Other													
Bond													
Permits													
Taxes													
TOTALS	**US$ 225,499**	**US$ 129,277**	**US$ 679,979**	**US$ 432,259**	**US$ 36,331**	**US$ 68,939**	**US$ 29,686**	**US$ 28,116**	**US$ 46,057**	**US$ 28,307**	**US$ 23,308**	**US$ 21,058**	**US$ 31,274**

Exclusions (Describe per Item #)	
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The below stated Bidder agrees to provide all labor, materials, equipment, supervision and all activities required to provide a complete scope of work as defined in the Request for Proposal, unless excluded above.

Name:

Authorized Signature:

Date: