

# MH Professional Engineering, PLLC



## K-12 PROJECT EXPERIENCE

### **SCHODACK CENTRAL SCHOOL DISTRICT, MAPLE HILL MIDDLE/HIGH SCHOOL & CASTLETON ELEMENTARY SCHOOL RECONSTRUCTION**

Castleton-on-Hudson, NY

- Lead Mechanical, Electrical, Plumbing, and Fire Protection Engineers for the complete renovation of instructional and instructional support spaces.
- Created middle school small learning community on second floor.
- Addition & Reconstruction provided for high school (first floor) and middle school (second floor) STEM Center.
- Created a dedicated arts wing, including a building expansion, to accommodate band and chorus programs shared by the high school and middle school.
- High school and middle school are secure and can be isolated from spaces shared by community during off hours.
- Existing district offices relocated to allow for expansion of high school.
- Existing technology spaces renovated to support modern STEM program.
- Added sprinkler system to approximately three-quarters of the existing building, including fire pump.
- Modified plumbing systems to match revised floor plans, including chemistry, biology and physics classrooms.
- Upgraded/expanded electric distribution system to match floorplan layout. Worked closely with district to verify and reorganize loads on the existing generator in order to get fire pump on emergency power.
- Completely modernized heating and ventilation systems throughout renovated area, including air conditioning to several areas and complete control system upgrade.
- Provided LED, Energy Star lighting throughout renovated areas and complete control system upgrade.
- In the elementary school, renovated secure entrances, art rooms, music room, and nurses' suite; provided air conditioning for each classroom; and provided electrical design to support renovations, added air conditioning, and technology expansions.



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## K-12 PROJECT EXPERIENCE

### **DURKIN ADMINISTRATION BUILDING, WORCESTER MA CENTRAL SCHOOL DISTRICT**

Worcester, MA

- Lead Mechanical and Electrical Engineers for energy conservation upgrade project in seven-story school administration building.
- Project includes replacement of cooling towers with VFDs on fans, new variable primary chiller, adding VFDs to condenser water pumps, changing fan coil unit motors to ECM motors, adjustment of outside air delivery to match current code requirements, and upgrade to control system components and sequence of operation.



## K-12 PROJECT EXPERIENCE

### **SCHODACK CENTRAL SCHOOL DISTRICT 2022 CAPITAL IMPROVEMENT PROJECTS – MAPLE HILL HIGH SCHOOL**

Schodack, NY

- Lead Mechanical, Electrical, and Plumbing Engineers for renovations to Maple Hill High School, part of the Schodack Central School District.
- Phasing, value engineering, and alternates for the project were closely coordinated to remain within the original approved budget and prioritize the district's needs.

#### **High School HVAC Upgrades**

- The renovation involved the removal of the existing steam system and its replacement with gas-fired condensing boilers, new variable speed pumps, and controls. This replacement was carefully coordinated to ensure the continuity of operations by keeping one existing boiler operational during the replacement process.
- New rooftop units (RTUs) were provided for heating, cooling, and ventilation in the Technology Wing classrooms, along with a recirculating dust collection system for the wood shop and local source capture exhaust systems for welding stations.
- The Auditorium received new heat recovery RTUs. A combination of variable refrigerant flow systems and ductless split AC systems were installed to condition existing classrooms, with controls tied into the existing building management system to prevent simultaneous heating and cooling.

#### **High School Kitchen Upgrades**

- The renovation included providing a new commercial kitchen hood with integral fire suppression, upblast exhaust fan, and indirect gas-fired make-up air unit.
- Connections to new handwash and chef worktable sinks were also provided.

#### **High School Electrical Work**

- Electrical upgrades included providing new power panels for technology spaces and boiler room, as well as the disconnection and removal of existing pumps, electrical ceiling devices, and various electrical conduits and wires to accommodate the HVAC and fire protection work.
- A range of electrical improvements were made in the work areas, including lighting, emergency lighting, exit signage, fire alarm devices, receptacle power, and equipment power for the Technology areas.

#### **High School Additional Electrical Alternates**

- Electrical scope also included connection for all new mechanical equipment.



## K-12 PROJECT EXPERIENCE

### **SCHODACK CENTRAL SCHOOL DISTRICT 2022 CAPITAL IMPROVEMENT PROJECTS – CASTLETON ELEMENTARY SCHOOL, MAPLE HILL MIDDLE SCHOOL, AND BUS GARAGE**

Schodack, NY

- Lead Mechanical, Electrical, and Plumbing Engineers for renovations spanning multiple buildings located on the Schodack Central School campus.
- Phasing and value engineering for the various projects were closely coordinated to remain within the original approved budget and prioritize the district's needs.

#### **Castleton Elementary School:**

- Integrated controls for the existing ductless split AC system with the building management system to avoid simultaneous heating and cooling with the base unit ventilator heating system.
- Installed site lights for the parking lot extension, including conduit and wiring, and supplied site lights for the main entry pull-off/pick-up loop, with conduit and wire connections to the proposed lighting contactor and existing time clock in the basement electrical room.
- Provided comprehensive details for pole/bollard bases, trenching, and handholes.
- Established a conduit path from the existing IT rack/security head end to the proposed card reader locations at entrance doors.

#### **Maple Hill Middle School:**

- Removed existing moveable partition conduit, wiring, and associated appurtenances in the gymnasium.
- Provided connections to all electrical devices, including exit signs, emergency lighting units, conduits, iPhones, card readers, and lighting.
- Installed canopy lighting in two side entryways, while also connecting existing downlighting at the main entry.

#### **Bus Garage:**

- Removed overhead doors for replacement.
- Installed conduit and wiring for the overhead door, utilizing existing circuit breakers for efficiency.



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## K-12 PROJECT EXPERIENCE

### **2019 CAPITAL IMPROVEMENTS, MORIAH CENTRAL SCHOOL DISTRICT**

Port Henry, NY

- The 2019 Capital Improvements project at Moriah Central School District involved the comprehensive renovation of a combined K-12 school and associated bus garage. The scope of work encompassed mechanical, electrical, and plumbing upgrades, alongside system replacements and enhancements across the entire facility comprising 185,000 ft<sup>2</sup>.

#### Main Building Renovation Details:

- The project included a full gut renovation of elementary classrooms, cafeteria, office spaces, three main entrances, office areas, and a band room.
- Mechanical upgrades covered the installation of ducted heat pump units with hot water reheat coils, auxiliary fin tube radiation, and a new rooftop unit with sound attenuation components for the band room.
- Additionally, the project entailed the design and implementation of a range of electrical systems, including power supply for new turf track receptacles, scoreboard, flag lights and field lighting, LED surface, recessed, and decorative lighting, automatic lighting control systems, generator transfer devices and life safety transfer switch, public address and clock system, access control system, and fire alarm system upgrades.

#### Bus Garage:

- Involved the replacement of cast iron, propane-fired boiler, conduit and fiber cabling for fire alarm system, power supply for grinder pump and controller, and power for welding equipment.



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## K-12 PROJECT EXPERIENCE

### **REPLACE WATER LINES, SCHODACK CENTRAL SCHOOL DISTRICT**

Castleton-on-Hudson, NY

- Lead Plumbing Engineer.
- Disconnection of potable water system from existing well and booster pumps.
- Removal of existing galvanized steel cold water, hot water and recirculation piping mains in the basement and crawl spaces of the school.
- Installation of copper cold water, hot water and recirculation mains, including new valves and insulation (approximately 4,500 lineal feet of piping).
- Installation of a new domestic water service from the town's municipal water system, including installation of backflow prevention.



## K-12 PROJECT EXPERIENCE

### DOLGEVILLE CENTRAL SCHOOL DISTRICT

Dolgeville, NY

- Lead Mechanical, Electrical, Plumbing, and Fire Protection Engineers.
- Renovated areas included complete reconfiguration of high school athletic wing (locker rooms, weight room, team room and team locker area), upgrades to auditorium power, new concession stand, new music/choral room, renovated/expanded high school and elementary cafeterias, and complete rehabilitation/reconfiguration of kitchen and serving lines.
- Designed ventilation systems, heating systems, make-up air ductwork, kitchen hood exhaust and general exhaust. Modified heating hot water piping for new equipment connections. Included controls upgrades for new equipment and existing equipment to remain.
- Modified the building's sanitary drainage, venting piping, and domestic water systems in renovated areas.
- Provided modifications to electric power distribution for mechanical equipment, general receptacle power, and specialty equipment power feeds.
- Designed power, switching and wiring to indoor/outdoor lighting, associated controls, egress lighting, and exit signs for renovated areas.
- Designed modifications to building's clock, public address, telephone and data systems.
- Designed raceway/conduit to accommodate security, telephone and data wiring.
- Designed boiler replacement project, including associated upgrades to exit lights, emergency lighting and carbon monoxide detection.
- Designed toilet room addition for existing bus garage.



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## K-12 PROJECT EXPERIENCE

### **WARRENSBURG CENTRAL SCHOOL DISTRICT**

Warrensburg, NY

- Provided building conditions survey for most recent SED Building Conditions reporting period.
- Provided design and construction services for the replacement/conversion of an aging pneumatic control system at Warrensburg Elementary School.





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## K-12 PROJECT EXPERIENCE

### SCHUYLERVILLE CENTRAL SCHOOL DISTRICT

Schuylerville, NY

- Designed upgrade/rehabilitation of district's administration building.
- Designed upgrade of mechanical, including complete control system upgrade, and plumbing systems for elementary classroom wing.
- Designed HVAC upgrades for classroom addition.
- Designed upgrade to heating system in middle school office area.
- Designed HVAC upgrades to high school gymnasium. Systems were original to the building (1965).
- Reviewed, diagnosed and resolved several issues within buildings that had lingering, unsolved construction problems: gas vent location, overheating kiln rooms.
- Provided engineering review, schematic design and estimating services for proposed high school kitchen upgrade.



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## K-12 PROJECT EXPERIENCE

### MORIAH CENTRAL SCHOOL DISTRICT

Port Henry, NY

- The project included full electrical distribution system upgrade, addition of air conditioning to several areas in building, upgrade of the metal shop exhaust and ventilation system, and upgrades to the electric and HVAC systems in the bus garage.



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## K-12 PROJECT EXPERIENCE

### **364 WARREN STREET SCHOOL**

Hudson, NY

- Lead Mechanical Engineer in charge of improving the ventilation system of an 1800s building in order to meet NYS Mechanical Code and NYS State Education requirements.
- Performed on site review of existing conditions.
- Designed outdoor air supply system, including air-to-air-heat recovery system to match occupancy indicated by owner.
- Designed supplemental heating and cooling system for outside air system.
- Designed modifications to existing second floor RTU system to suit occupancy and NYS Education Department requirements.



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## K-12 PROJECT EXPERIENCE

### **COLUMBIA-GREENE ACADEMY, 11 WARREN STREET**

Hudson, NY

- Lead Mechanical, Electrical, and Plumbing Engineers for the design of Columbia-Greene Academy.
- Project included lighting design for interior lighting and circuiting, power and receptacle layout, and power for mechanical equipment and new fire alarm system.
- Created layout of a paging system, wireless access points and new clocks.
- Modified sanitary drainage and venting and domestic water system throughout building.
- Modified existing sprinkler system to match reconfigured spaces.
- Designed new HVAC distribution system to match reconfigured spaces.



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## K-12 PROJECT EXPERIENCE

### ONONDAGA NATION SCHOOL, EXPANSION AND INFRASTRUCTURE STUDY

Nedrow, NY

- Lead Mechanical and Electrical Engineers for a study to expand spaces and improve technological infrastructure at the Onondaga Nation School.
- The school has not had any upgrades or improvements since the early 1990s.
- The program study outlined the building system upgrades necessary to meet today's expanding technological needs, but also normal "wear and tear" that a school endures.
- Integral to the study was a requirement to provide a gymnasium/multipurpose space large enough for full court competition sports, extensive shower facilities and a food preparation kitchen for cultural events.
- As part of the study, the addition and systems proposed had to reflect the Onondaga Nation beliefs and philosophies.
- As a reflection of the Onondaga Nation's respect for Mother Nature, photovoltaic panels, solar domestic hot water, rain water harvesting, and a geothermal heating and cooling system were proposed.



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### **BUS GARAGE RENOVATIONS, SCHODACK CENTRAL SCHOOL DISTRICT**

Schodack, NY

- Lead Mechanical, Electrical, and Plumbing Engineers for the renovation of a bus garage.
- Designed the replacement of an oil-fired furnace which provides conditioning and ventilation air to the space.
- Designed a new carbon monoxide monitoring and exhaust system.
- Designed the plumbing systems to accommodate ADA bathroom layouts and replacement of the domestic water heater.
- Designed electrical power distribution for grinder pumps; lighting in the renovated bathrooms; power distribution for receptacles, exhaust fans and an air handling unit; and a new fire alarm system.

### **AUDITORIUM MODIFICATIONS, MAPLE HILL HIGH SCHOOL, SCHODACK CENTRAL SCHOOL DISTRICT**

Schodack, NY

- Lead Electrical Engineer for auditorium theatrical system modifications.
- Designed power distribution for proposed IQ panel for the dimming equipment, audio rack power and receptacles.
- Designed electrical drawings showing conduit routings for audio cabling and lighting controls.

### **KITCHEN HOOD REPLACEMENT, MAPLE HILL HIGH SCHOOL, SCHODACK CENTRAL SCHOOL DISTRICT**

Schodack, NY

- Lead Mechanical, Electrical, and Plumbing Engineers for the renovation of the commercial kitchen.
- Designed a make-up air, exhaust air, and associated ductwork system to serve the kitchen hood.
- Designed the renovation of plumbing systems to accommodate the equipment modifications and natural gas distribution to the make-up air unit.
- Power distribution for the replacement hood, exhaust fan, make-up air unit, and equipment modifications; LED lighting for renovated areas; and fire alarm devices, detection, carbon monoxide and notification in renovated areas.

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### **CAFETERIA LIGHTING & SIGN IMPROVEMENTS, MAPLE HILL HIGH SCHOOL, SCHODACK CENTRAL SCHOOL DISTRICT**

Schodack, NY

- Lead Electrical Engineer for upgraded cafeteria lighting and digital sign.
- Designed site power for the sign; cafeteria lighting and controls; and provided sketches showing the existing cafeteria ceiling items to be removed and stored for reinstallation.

### **TECHNOLOGY ROOM RENOVATIONS, MAPLE HILL HIGH SCHOOL, SCHODACK CENTRAL SCHOOL DISTRICT**

Schodack, NY

- Lead Mechanical, Electrical, and Plumbing Engineers for the renovation of a high school woodshop and technology classrooms.
- Designed new HVAC systems to serve the classrooms in compliance with SED requirements, including a recirculating dust collection system.
- Designed the renovation of plumbing systems to accommodate the new layout.
- Designed power distribution for power panels, rooftop units, special shop equipment, receptacles and wire mold.
- Designed lighting in the renovated spaces.
- Designed modifications to the existing fire alarm system, including detection devices, notification devices and fan shut-downs.

