

**MOUNT PLEASANT ELEMENTARY SCHOOL**

**HVAC**

**M-01 Heating Plant:**

**Observations:**

See middle school report.



**M-02 Heating & Ventilating Systems:**

**Observations:**

Classrooms – Almost all older classrooms are served by steam unit ventilators with supplemental fin-tube radiation. The units are original to the building and appear to be in fair to poor condition and have well exceeded their expected operating life. Some older classrooms have been upgraded with new hot water unit ventilators with supplemental fin-tube radiation. Newer (renovated areas) are served by new RTU's. A few window air conditioners are present to provide cooling to select rooms. Operating along with the unit ventilators, are exhaust fans, which assist in maintaining building pressure. Some fans were not energized and some appeared in need of repair.

Gym/Cafeteria - The room is served by steam heating & ventilating (H&V) units. The units are original to the building and appear to be in fair condition, though they have exceeded their expected operating lives.

Activity Room – The room utilizes steam unit ventilators to provide space heating and ventilation.

Media Center - The media center utilizes a newer gas-fired, heating/cooling rooftop unit.

Miscellaneous Areas – The main circulation corridors utilize hot water cabinet unit heaters, but currently receive no ventilation to the space.



Livingston School District  
Mount Pleasant Elementary School

**Recommendations:**

*Spaces such as the classrooms, gym/cafeteria and activity room should have the HVAC equipment replaced since it has been in service long after its expected operating life. The new equipment will replace the existing equipment in-kind, except that additional outdoor ventilation air will be introduced per today's codes and the new equipment will be fitted with microprocessor controllers to integrate with a building control system. Areas that receive little or no ventilation must be upgraded as required. Conversion of the steam system to a hot water system is desirable for better controllability. Exhaust fan maintenance should be addressed by repairing units where possible and replacing those in bad repair. In addition, boilers should be retrofitted to operate as hot water (instead of steam). New piping, pumps and controls are required. Previously installed heater exchangers can be removed.*



**M-03 Cooling Systems:**

**Observations:**

Office Areas – The elementary school admin area utilizes window air conditioners.



Media Center – The media center utilizes a newer gas-fired, heating/cooling rooftop unit.

**Recommendations:**

*Though no immediate upgrades are required, consideration should be given to provide cooling to the classrooms, auditorium, cafeteria and gymnasium. Vertical, self-contained heating/cooling units are recommended for the classrooms, while multiple rooftop units with heating/cooling are recommended for the larger spaces (i.e. activity room & gym/cafeteria).*



Livingston School District  
Mount Pleasant Elementary School

#### **M-04 Temperature Control Systems:**

##### **Observations:**

See middle school report.

#### **M-05 Plumbing**

##### **Observations:**

The main domestic water service enters the building in the boiler room at the central west side of the building. Service size is 4" with a pressure reducing valve and no backflow prevention.

Domestic water heating is provided by a large horizontal indirect heated storage tank which is heated with boiler water. There is no separate summer water heater to provide hot water during boiler shut down periods. All domestic water piping located at and around the hot water storage heater is severely corroded.

Natural gas enters the building in the boiler room on the west side of the building and supplies the boilers and the kitchen cooking equipment. There is a gas line that runs to the Home Economics class at the north end of the building with an emergency shut-off valve in the classroom.

There are several wall mounted drinking fountains throughout the building that are operating sufficiently. Not all locations have ADA fountains.

##### **Recommendations:**

*The domestic water heating system and associated surrounding piping is currently being addressed in as a separate project.*

*The second floor student toilet rooms should be modified to provide for ADA fixtures.*

*Drinking fountain locations should have an ADA compliant fixture.*

Livingston School District  
Mount Pleasant Elementary School

## **M-06 Fire Protection:**

### ***Observations:***

There are limited wet sprinkler systems located in storage rooms throughout the building.

### ***Recommendations:***

*All existing limited area sprinkler system should remain operational*



## **ELECTRICAL**

### **E-01 Electrical Service**

#### **Observations:**

The Mount Pleasant Elementary School shares this electrical service with the middle school. The existing electrical service is a 208Y/120 volt, 3000 Amp service with four services disconnect switches. The existing disconnect switches total 2700 Amps. The electrical service is obtained from a PSE&G, 750 kva pad mounted transformer with electric meter number 778015156 and PSE&G account number 12-616-025-2-8.

The peak electrical demand is 256.0 kw or 711 amps which leaves 608 kw or 1688 amps available for future renovations or expansions.

There is space for two additional service disconnect switches

There is a dedicated computer distribution system fed through an isolating transformer and serving computer loads through the school

The electric service and distribution equipment looks relatively new and to be in good condition.

There is a TVSS on the main service and a TVSS on the computer distribution panel.



Livingston School District  
Mount Pleasant Elementary School

There is no fire pump fed from this service.

There is no generator at this school.

**Recommendations:**

*The existing PSE&G service and service equipment is adequate for the current building needs. This system should be cleaned and serviced periodically to insure long life and proper operation.*

*Should it be decided to fully or partially air-condition the subject building then the electrical service distribution will have to be upgraded.*



**E-02 Electrical Distribution**

**Observations:**

The Mount Pleasant Elementary School shares the distribution with the elementary school. The electrical distribution system is all at 120/208 volts. There is a normal power distribution system and a computer distribution system. The computer system was installed in the late '90s and appears to be in good condition. The normal distribution system is combination of newer and older (original) panels in the building.

**Recommendations:**

*The existing distribution system serving the school should be tested and serviced periodically to insure long life and proper operation.*



**E-03 Devices**

**Observations:**

Local receptacles were sparse in some areas and computer areas were fed with surface mounted raceway.

**Recommendation:**

*As the building is block wall construction, any renovation would likely require surface mounted raceway and outlets*

Livingston School District  
Mount Pleasant Elementary School

*built into new partition walls. Additional outlets should be provided as required.*

## **E-04 Normal Lighting**

### **Observations:**

The majority of the school has been upgraded to modern T-8 lighting. Some of the corridors still have T12 lamps and fixtures. There is also a mix of direct pendant, indirect pendant, and recessed fixtures in classrooms. For the most part this lighting is appropriate for the use. Some classrooms and areas appear dark and should have lighting upgrades to meet the New Jersey School code and the recommendations of Illuminating Engineering Society.

### **Recommendation:**

*Upgrade the areas of inadequate lighting with new lighting producing a higher level and quality of light. Additional switching or controls could also be provided to bring the school up to the New Jersey Energy Code. (ASHRAE 90.1)*



## **E-05 Exit Signs and Emergency Lighting**

### **Observations:**

The school does not have an automatic stand-by generator so it must rely on batteries for exit signage and egress lighting. Exit signs are located appropriately throughout the school. Many are large older units with incandescent lamps and large batteries. Egress lights are also battery backed wall pack type located throughout the school. It appeared to be deficient in egress lighting.

### **Recommendation:**

*Upgrade the Exit signs to newer LED style signs which will reduce power consumption and reduce maintenance. Provide additional egress lighting packs where necessary to provide the minimum 1 foot candle average along the path of egress.*



Livingston School District  
Mount Pleasant Elementary School

## E-06 Exterior Lighting

### Observations:

Wall mounted HID fixtures are located around the perimeter.

### Recommendation:

*Replace/ repair fixtures as required, re-lamp and provide additional fixtures in low coverage areas.*

## E-07 Fire Alarm

### Observations:

The fire alarm system is an Edwards Systems Technology IRC-3 addressable fire alarm system which is a mix of newer addressable and older non addressable equipment.

This fire alarm system serves both the middle school and elementary school. Existing system does not meet current requirements. There are missing several strobes and pull stations.

We could not visibly see the hood Ansul system connection to the fire alarm system.

### Recommendation:

*Proceed with the board of education's plans to replace the fire alarm system in December of 2007.*



## E-08 Intercom System

### Observations:

The intercom is a Bogan Multicom 2000 located on the South side of the building. The system is programmable with output zones and covers the elementary school only. Classrooms have telephones and no call switches to initiate an intercom call. Calls from the classroom are by telephone handsets.



## E-09 Clock System

### **Observations:**

The existing clock system is an ISS4 from Institutional Service Corp. and is located on the second floor of the middle school. Although the system looks to be in good operation. There were several clocks which were not in sink or had been replaced with battery clocks. This could be from damaged wiring, shorts or open circuits.

### **Recommendation:**

*Replace the existing clock system with a new wireless system.*



## E-10 Security System

### **Observations:**

The school has an existing security system comprising of motion sensors throughout the first floor corridors and classrooms.

### **Recommendation: None**

## E-11 Tele/Data

### **Observations:**

The telephone service is provided by Verizon PRI-T1, digital circuits and various copper POTS lines. The telephone service is distributed to users over combined voice and data network via Cisco Unity Servers.

### **Recommendations:**

*Verify TIA/EIA standards were used for distance limitations, cable mapping, etc. Verify TVSS devices were used on utility and emergency links (faxes, 911, F.A.C.P. dialer, etc.) Verify that all computer power feeds originate from a panel employing a transient voltage surge suppressor (TVSS) device. If TVSS devices are missing provide and install.*