GENERAL CONSTRUCTION SYSTEMS

I. EXISTING CONDITIONS

A. ORIGINAL BUILDING

Date of Construction	:	1960.
Construction Classification	:	A (Fire resistive/Noncombustible).
Total Floor Area	:	46,890 sf.
Number of Floors	:	One; ground.
Structural System	:	Masonry bearing wall.
Floor Construction	:	Reinforced concrete.
Roof Construction	:	Steel beam/joists, 2 ½" poured gypsum deck, single-ply membrane.
Exterior Wall Construction	:	Brick face, cavity wall, masonry backup.
Interior Wall Construction	:	Painted masonry.
Windows	:	Aluminum sash/frame, dual glazed.
Exterior Doors	:	Aluminum doors and frames, full glass main entrances, wood door/frame secondary entrances.

II. CODE REQUIREMENTS

* $ 0 1. **Rescue Window:** Emergency egress windows must be identifiable at all times from both inside and out to promote rapid egress and rescue. Rescue window signage was noted to be absent in several classrooms. Review signage throughout school and correct where necessary. No cost.

$ 0 **TOTAL - CODE REQUIREMENTS WORK**

III. ARCHITECT'S AND ENGINEER'S RECOMMENDATIONS

III.A. HEALTH AND SAFETY IMPROVEMENTS

$ 9,400 1. **Closers:** Newly constructed unsprinklered buildings require door closers on all doors that open onto a corridor in order to maintain exit corridor fire separation rating. Most rooms do not have closers, provide new closers throughout.

$ 0 2. **Stage/Classroom**: According to SED Planning Standards, a view to the exterior through windows is a critical component in occupant comfort. The Stage has been converted to instructional space. Since this space does not have an exterior wall, and no potential for window installation, it should be relegated to non-instructional use. No cost impact.

$ 9,400 **TOTAL - HEALTH AND SAFETY IMPROVEMENTS**

III.B. FACILITY IMPROVEMENTS

INTERIOR

_____ $ 8,200 1. **Ceilings**: Except for a few spaces, ceilings are in good condition. Replace 12" adhered tile ceilings with new suspended ceiling system in the following spaces:
   a. Room 9;
   b. Library Office;
   c. Nurse's Office.

_____ $ 40,000 2. **Chalk/ Marker boards:** Many chalk and tackboards throughout are worn, scratched, faded, and at the end of their utility. Cost provides for replacement of primary boards in most classrooms with new chalk or marker boards.
Note: Cost also provides for option to install a steel (marker board) skin over existing chalkboards, replacement of chalkboards with markerboards or combination of the above

_____ $ 215,000 3. **Floor Tile - Vinyl Asbestos:** This ACBM is prevalent throughout the facility. Most is in marginal condition, some, including areas of corridor is in poor condition as evidenced by large number of replaced tiles. Primary recommendation is to remove and abate throughout and replace with new resilient floor covering.
Note: 9" tile floors are typically asbestos containing. Replacement would require abatement and is included in the cost above.

Resurfacing these floors with welded seam sheet vinyl is a viable option that the District may wish to entertain. This option effectively encapsulates the ACBM and thus does not require an abatement project.
Additionally, at a minimum, some VAT abatement will be necessary to facilitate heating system replacement. See Mechanical Work Section III.B.

_____ $ 65,000 4. **Furnishings/Casework:**
Classroom upgrade to include:
   a. New base cabinet with handicapped accessible sink;

   b. Casework: storage cabinets, wardrobes and cubbies along one wall in each room.

_____	$	70,000	5.	**Library**: The Library as a core facility, and an important part of the educational experience, should be dedicated to providing an accessible active learning center, in addition to maintaining the facilities for the storage, control, and dissemination of audiovisual equipment used for other programs. a. Provide carpet. Assumes VAT to be removed per above recommendation; b. Acoustical lay-in ceiling system with 2x2 parabolic light fixtures.; c. Circulation desk; d. New casework. Consider some smaller workstations and tables to foster individualized study (space dependent); e. Update finishes; f. Provide segregated computer space.
_____	$	2,300	6.	**Miscellaneous Finishes**: a. Refinish or paint wood paneling in Lobby; b. Provide accent paint to provide visual interest in long main corridors; c. Upgrade wall finishes in Kindergarten Rooms.
_____	$	13,500	7.	**Toilet Partition:** Partitions and stall doors range in materials from CMU to hollow metal to plywood. Replace with stalls in B/G toilet rooms with high-density polyethylene (HDPE) resin units. Note: stalls in M/W toilet rooms are rusted. Stalls are not needed here since these rooms are single user. Remove and patch finishes as necessary.
	$	**414,000**		**TOTAL – FACILITY IMPROVEMENTS**

III.C. ENERGY CONSERVATION

_____	$	85,500	1.	**Exterior Doors:** a. Replace full glass storefront type main entrances (2), with insulated weatherstripped doors/frames to upgrade reliability and energy efficiency. Cost includes panic hardware, continuous hinges and closers. b. Replace wood doors/frames at secondary entrances from classroom wings (2).
	$	**85,500**		**TOTAL - ENERGY CONSERVATION MEASURES**

III.D. HANDICAPPED ACCESSIBILITY

Our evaluation and recommendations are based on the design and site criteria established by the State Education Department and the Rehabilitation Act of 1973, Public Law 93-112, Section 504. Our proposal will benefit, in our opinion, most disabled individuals requiring building and program accessibility. We believe that in addition to general accessibility, the District may need to further implement building and programmatic modifications in response to an individual's specific and unique needs as provided under the legislative intent of aforementioned law as well as the ADA. The Americans with Disabilities Act (ADA), signed into law on July 26, 1990 mandates that all public and private accommodations be accessible to people with disabilities, and that employers make reasonable accommodations to facilitate the employment of people with disabilities.

INTERIOR ROUTES

TYPICAL PLATFORM LIFT

*_____ $ 37,500 1. **Interior Routes:** This building is an interesting case in that its two main classroom wings are accessible from the exterior but separated inside by two sets of stairs. The portion of building connecting the two classroom wings is at a higher level than either wing. To complicate matters, each of the three sections contains unique program spaces; Gymnasium, Cafeteria, and Library. The Main Office and Nurse are located in the center section.

Provide platform lifts at each stair (2). Each lift will take approximately half the width of the stair but the reduced egress capacity of the stairs will still satisfy code requirements. At the District's preference, each lift could be placed at the base of the existing stairs and a "bridge" constructed to facilitate discharge to the higher level, or, one side of the stairs can be demolished and the platform lift installed in its place so that access to the lift is directly from each floor level.

*_____ $ 3,100 2. **Signage:** The interior accessible route, spaces, and elements within the school should be clearly identified.

a. Provide additional directional signage throughout;
b. Provide raised letter and brailled signage at classrooms and other interior spaces to include assembly areas, offices, and designated accessible spaces;
c. Provide signage to include the international symbol of accessibility at accessible toilet rooms.

INTERIOR ELEMENTS

_____ $ 9,400 3. **Door Hardware:** Most, but not all, doors have knob type handles. Replace remaining knobs with leversets.

_____	$ 1,650	4.	**Stair Handrails:** To improve stairway safety and promote access by ambulatory disabled persons, provide the following at each stair: a. Contrasting colors and materials can help visually and tactilely orient the user. Paint treads and risers or use color strips on nosing and paint stairwell walls with two color system; b. Replace wall mounted handrail on one side with handrail that complies with current accessibility standards: rounded gripping surface, 12" extension beyond top and bottom risers. Assumes platform lifts will be installed (see above).
_____	$ 22,400	5.	**Toilet Rooms - Student**: Renovate B/G gang toilet room to provide full accessibility: a. Relocate urinals and toilets as necessary to provide minimum clear floor space in front of accessible urinals, lavatories, and toilets; b. Replace one urinal with elongated rim wall hung units; c. Install one accessible stall with accessible water closets in each toilet room; d. Provide required grab bars, toilet accessories, and mirrors in response to the above renovations; e. Provide audible and visual fire alarm; f. Entrances are narrow and lack appropriate pullside clearance. Remove exterior door and install door further inside room. Note: providing automatic closers with push plate operators inside and outside these rooms is also an option to provide accessibility.
_____	$ 12,500	6.	**Toilet Room – Nurse:** Currently, the Nurse shares a toilet room with Faculty. The Nurse should have a separate accessible toilet facility. Construct new toilet room adjacent to the existing room and within current the Faculty space. Remove second door to existing toilet room so that it is only accessible from the Faculty Room.
_____	$ 10,000	7.	**Toilet Rooms - Kindergarten**: Toilet facilities for early intervention should be designed for their exclusive use, handicapped accessible and configured to insure privacy. Combine B/G rooms in Kindergarten Room 9, and renovate into one fully accessible unisex toilet room.
_____	$ 6,250	8.	**Toilet Room – Staff**: The M/F toilet rooms opposite the Main Office are fairly large and could be fully accessible if made single user. Renovate to single user and install accessible features; a. Water closet, grab bars, accessories; b. Lever handle on doors (cost included above).
	$ 102,800		**TOTAL - HANDICAPPED ACCESSIBILITY**

III.E. RECOMMENDED STUDIES AND TESTING

		None.
$	**0**	**TOTAL - RECOMMENDED STUDIES AND TESTING**

IV. DISTRICT REQUESTS

		None.
$	**0**	**TOTAL - DISTRICT REQUESTS**
$	**611,700**	**TOTAL - GENERAL CONSTRUCTION SYSTEMS**

SITE WORK

I. EXISTING CONDITIONS

The Netherwood Elementary School site is accessed from Netherwood Road. Between Netherwood Road and the school drive is another property and lawn to the front of the school. The main entrance area to the school building is attractively planted and well maintained. To the southwest is a wooded area, to the northeast is a horse farm, and to the rear of the building are playing fields. The open courtyard to the rear is nicely landscaped.

Asphalt topcourse of all existing asphalt is recommended to extend the life of the pavement and improve its appearance. Reinforced wooden fencing with appearance similar to that of the nearby horse farms or other type of barrier is needed to prevent cars from driving on the lawn and to protect the students when outside. Additional parking spaces and a new parent drop-off were requested by the District.

Recommendations are made for improvement of the playing fields. The softball fields are worn, uneven and compacted, and the infields are particularly uneven. Therefore, it is recommended that the fields be leveled out and refurbished. Other site improvements include upgrades to the playgrounds and general lawn areas.

II. CODE REQUIREMENTS

None.

$ 0 TOTAL - CODE REQUIREMENTS WORK

III. ARCHITECT'S AND ENGINEER'S RECOMMENDATIONS

III.A. HEALTH AND SAFETY IMPROVEMENTS

None.

$ **0** **TOTAL - HEALTH AND SAFETY IMPROVEMENTS**

III.B. FACILITY IMPROVEMENTS

$	16,000	1.	**General Lawn Areas:** To improve appearance and general health of the lawn areas adjacent to the building, aerate, topdress, fertilize, and overseed.
$	115,500	2.	**Existing Asphalt Pavement:** At existing pavement, power wash, fill cracks, provide paving fabric and asphalt topcourse. Remove and replace approximately 20% of pavement that is too deteriorated to repair. Provide new line striping and symbols.
$	1,000	3.	**New Swing Gate:** Provide steel swing gate at entrance to asphalt play area to prevent vehicles from driving into play area; can be opened during bus stacking period.

_____	$	24,000	4.	**Playing Fields:** Smooth out grades by removing high and low spots and slope to drain. Rehabilitate turf by aerating, topdressing, fertilizing, and overseeding.
_____	$	25,000	5.	**Site Lighting:** Provide additional security lighting.
_____	$	56,000	6.	**Playgrounds:** All pea gravel surfacing to be removed and replaced by 12" depth of engineered wood fiber surfacing with underdrainage. It is recommended that all play equipment over ten years old be inspected by a certified playground safety inspector for compliance with current playground safety codes.
_____	$	20,000	7.	**Vehicle Barrier:** Provide wooden fence or other barrier to prevent cars from driving on lawn areas and to protect students. One barrier runs from the northeast building corner, around the parking lot and connects to adjacent property fencing. Another barrier runs from the northwest building corner to the swings.
	$	**257,500**		**TOTAL - FACILITY IMPROVEMENTS**

III.C. ENERGY CONSERVATION

		_____		None.
	$	**0**		**TOTAL - ENERGY CONSERVATION MEASURES**

III.D. HANDICAPPED ACCESSIBILITY

_____	$	1,500	1.	**Accessible Route to Playgrounds:** Provide accessible route to playgrounds and onto playground surfacing.
_____	$	5,000	2.	**Accessible Ramp:** Update handicapped ramp to northeast corner of building.
	$	**6,500**		**TOTAL - HANDICAPPED ACCESSIBILITY**

III.E. RECOMMENDED STUDIES AND TESTING

_____	$	2,500	1.	Geotechnical Pavement Borings.
	$	**2,500**		**TOTAL - RECOMMENDED STUDIES AND TESTING**

IV. DISTRICT REQUESTS

*	$	50,000	1.	**New Parent Drop-Off Loop:** Provide new drop-off to prevent parent vehicles from stacking up into the main road at pick-up time.
*	$	15,000	2.	**Additional Parking:** Provide 25 additional parking spaces by extending bay of parking across from main entrance.
*	$	30,000	3.	**Softball/Kickball Field:** Provide one regulation-sized softball/kickball field with skinned base circles at existing softball field. Remove and replace existing backstop. Smooth out grades at infield and outfield by removing high and low spots and slope to drain. Rehabilitate turf by aerating, topdressing, fertilizing, and overseeding.
*	$	5,000	4.	**Drainage at Playground:** Improve drainage at playground to north of building.
	$	**100,000**		**TOTAL - DISTRICT REQUESTS**
	$	**366,500**		**TOTAL – SITE WORK**

MECHANICAL SYSTEMS

I. EXISTING CONDITIONS

A. Primary Systems:

1. Heating System:
   a. Boilers : Two (2) Cleaver Brooks, fire tube boilers are used to produce hot water. Each boiler has a rated output of 3348 MBH and is original to the building.

   b. Burners : Two (2) No. 2 oil fired burners rated at 30 GPH input. Each burner is capable of firing both oil and natural gas.

2. Distribution System : Hot water is distributed throughout the building to air handling units, unit ventilators and perimeter fin tube radiation.

3. Fuel : The main fuel source is No. 2 fuel oil.

4. Controls : Original pneumatic control system is the main means of control. A new digital control system has been install but does not control the majority of the building.

B. Secondary Systems

1. Classrooms:
   a. Heating : Unit ventilators and perimeter fin tube radiation under windows.
   b. Cooling : None.
   c. Ventilation : Outside air intake louvers at unit ventilators.
   d. Relief Air : Via corridors and rooftop hoods.

2. Library:
   a. Heating : Unit ventilators and perimeter fin tube radiation under windows.
   b. Cooling : None.
   c. Ventilation : Outside air intake louvers at unit ventilators.
   d. Relief Air : Via corridors and rooftop hoods.

3. Nurses Area:
   a. Heating : Fin tube radiation along perimeter.
   b. Cooling : Window air conditioning unit.
   c. Ventilation : Via central exhaust system.
   d. Relief Air : Via corridors and rooftop hoods.

4. Corridors and Vestibules:
   a. Heating : Hot water cabinet heaters and convectors.
   b. Cooling : None.
   c. Ventilation : None.
   d. Relief Air : Via rooftop hoods.

5. Toilets:
   a. Heating : Hot water convectors.
   b. Cooling : None.
   c. Ventilation : Exhaust air drawn from corridor through door grilles.
   d. Exhaust Air : Exhaust air exits the building through a power roof exhauster.

6. Music Area:
   a. Heating : Indoor central air handling unit with hot water heating coil.
   b. Cooling : None.
   c. Ventilation : Outside air intake at air handler.
   d. Exhaust Air : Exhaust air exits the building through a power roof fan.

7. Gymnasium:
   a. Heating : Indoor central air handling units with hot water heating coil.
   b. Cooling : None.
   c. Ventilation : Outside air intake at central air handler.
   d. Relief Air : Via roof top hoods and fans.

8. Cafeteria:
   a. Heating : Indoor central air handling units with hot water heating coil.
   b. Cooling : None.
   c. Ventilation : Outside air intake louver at central air handler.
   d. Relief Air : Transfer air into Kitchen and exhausted through Kitchen hoods and roof exhaust fan.

9. Kitchen:
   a. Heating : Cabinet unit heater.
   b. Cooling : None.
   c. Ventilation : Transfer air from Cafeteria.
   d. Exhaust Air : Grease hood serves cooking equipment and condensate hood serves dishwasher. A power roof fan provides additional Kitchen exhaust.
   e. Fire suppression : Grease hood supplied with fire protection system.

10. Office Areas:
    a. Heating : Perimeter fin tube radiation under windows.
    b. Cooling : Window air conditioning units.
    c. Ventilation : Operable windows and a central exhaust system.
    d. Relief Air : Via corridors and rooftop hoods.

II. CODE REQUIREMENTS

None.

$ 0 TOTAL - CODE REQUIREMENTS WORK

III. ARCHITECT'S AND ENGINEER'S RECOMMENDATIONS

III.A. HEALTH AND SAFETY IMPROVEMENTS

$ 0 1. **Ventilation:** Many classrooms and office spaces currently haven't any means of positive tempered ventilation. Either the space has no equipment that can provide the ventilation, or the existing equipment is no longer capable of producing this tempered ventilation. Provide positive ventilation by installing unit ventilators and/or central air handling units ducted to these spaces. Equipment will be designed to deliver tempered air quantities as recommended by ASHRAE Standard 62 continuously during the building occupied times. Note: specific recommendations concerning ventilation to all spaces are addressed under various items in Section III.B. Facility Improvements (below).

$ **0 TOTAL - HEALTH AND SAFETY IMPROVEMENTS**

III.B. FACILITY IMPROVEMENTS

$ 300,000 1. **Unit Ventilator Replacement:** Replace existing unit ventilators throughout the entire building. The units are past their design life, outside air dampers are not all functioning and replacement parts are becoming difficult to obtain. As noted above in Section III.A. This equipment will be designed to deliver tempered air quantities as recommend by ASHRAE Standard 62 continuously during the building occupied times.

$ 125,000 2. **Exhaust Fan Replacement:** Given the age of the existing exhaust fans and to insure that the building is receiving the adequate amount of air exchange, the replacement of all exhaust fans throughout the entire building is recommended.

$ 25,000 3. **Pump Replacement:** Replace existing hot water distribution pumps serving the building. By providing high efficiency motors, energy savings can be attained.

_____	$	100,000	4.	**Air Handling Unit Replacement:** Replace existing air handling units throughout the entire building. The units are past their design life, outside air dampers are not all functioning and replacement parts are becoming difficult to obtain. As noted above in section III.A., this equipment will be designed to deliver tempered air quantities as recommend by ASHRAE Standard 62 continuously during the building occupied times.
	$	**550,000**		**TOTAL - FACILITY IMPROVEMENTS**

III.C. ENERGY CONSERVATION

_____	$	200,000	1.	**Temperature Controls:** Extend the existing direct digital temperature controls system. The control system would incorporate direct digital control logic and electronic actuation. The control system will be capable of controlling the equipment more efficiently and the building temperatures to tighter tolerances thus saving operating costs. It would not be prudent to install the energy management system without replacing the items recommended in Section III.B. above.
_____	$	0	2.	**Variable Speed Drive Pumping:** Variable speed drive pumping saves roughly $1,000 per Hp per year, offering positive cash flow for most financed installations. This is included in Item 3 of Section III.B above.
	$	**200,000**		**TOTAL - ENERGY CONSERVATION MEASURES**

III.D. HANDICAPPED ACCESSIBILITY

_____			None.
	$	**0**	**TOTAL - HANDICAPPED ACCESSIBILITY**

III.E. RECOMMENDED STUDIES AND TESTING

_____			None.
	$	**0**	**TOTAL - RECOMMENDED STUDIES AND TESTING**

IV. DISTRICT REQUESTS

_____			None.
	$	**0**	**TOTAL - DISTRICT REQUESTS**
	$	**750,000**	**TOTAL - MECHANICAL SYSTEMS**

PLUMBING SYSTEMS

I. EXISTING CONDITIONS

A. ORIGINAL BUILDING:

1. Water Supply:
   a. Source : Provided from on-site well.

2. Water Softening System:
   a. Type : K & M.
   b. Location : Boiler Room.
   c. Serves : The domestic water system.

3. Sewage Disposal:
   a. Method : On-site septic system.

4. Fuel Oil:
   a. Provided For : Boilers and domestic water heater.
   b Tank Size/Location : 10,000 gallon above ground tank.

5. Domestic Hot Water:
   a. Provided By : Tank type oil fired water heater.
   b. Temperature : Approximately 120° F.

6. Toilet Rooms:
   a. Gang : One set; B/G.
   b. Individual : Some classrooms have individual toilets. Separate toilet facilities are provided for the Health Room and for staff use.

7. Drinking Water:
   a. Provided By : Drinking fountains and electric water coolers.
   b. Location : Corridors. Cafeteria has an ADA water cooler. Some classrooms have sinks with bubbler units.

8. Fire Suppression System:
   a. Fire Standpipe : None.
   b. Sprinkler System : None.
   c. Kitchen Range Hood : Automatic wet chemical fire suppression system at fume hood.

9. Portable Fire Extinguishers:
   a. Type : ABC.
   b. Location : In cabinets in corridors or in individual rooms.

II. CODE REQUIREMENTS

None.

$ 0 **TOTAL - CODE REQUIREMENTS WORK**

III. ARCHITECT'S AND ENGINEER'S RECOMMENDATIONS

III.A. HEALTH AND SAFETY IMPROVEMENTS

$ 1,500	1.	**Backflow Preventor:** Provide a reduced pressure zone (RPZ) backflow prevention device on the makeup water connection to the boilers to guard against contamination of the potable (building) water system.
$ 6,000	2.	**Classroom Sinks:** Classroom sinks have bubblers, which is contrary to current sanitary standards. Replace sinks to include a separate bubbler to provide required separation distance between sink and bubbler. (Total of 2 units).
$ 750	3.	**Wrist Blades:** Provide a wrist blade type faucet for the handwashing sink in the Kitchen and nurses area to improve handwashing sanitation.
$ **8,250**		**TOTAL – HEALTH AND SAFETY IMPROVEMENTS**

III.B. FACILITY IMPROVEMENTS

$ 7,500	1.	**Grease Removal System:** Provide an automatically activated grease removal system for the Kitchen pot sink to replace the present grease trap and thereby improve the removal of grease and oils from the waste water stream to prevent downstream piping stoppages. It is reported that greases have been accumulating in the septic tank, which serves the Kitchen.
$ 3,000	2.	**Boiler Room Sump:** Replace sump pump system, which has reached the end of its useful life.
$ 125,000	3.	**Plumbing Fixtures:** Replace outdated plumbing fixtures and related piping throughout building to improve operation, appearance and serviceability.
$ 1,500	4.	**Water Coolers:** Replace outdated electric water coolers throughout building to improve operation, appearance and serviceability and to provide access to the physically handicapped. (Total of 1 unit).
$ 25,000	5.	**Water Softener:** Provide a water softening system to remove dissolved minerals from all incoming potable water to eliminate plumbing system and fixture problems related to lime scale accumulation.
$ 10,000	6.	**Domestic Well:** Install a new domestic water well. It is reported that the existing well has a marginal supply.
$ 172,000		**TOTAL – FACILITY IMPROVEMENTS**

III.C. ENERGY CONSERVATION

		None.
$	**0**	**TOTAL – ENERGY CONSERVATION MEASURES**

III.D. HANDICAPPED ACCESSIBILITY

		None.
$	**0**	**TOTAL - HANDICAPPED ACCESSIBILITY**

III.E. RECOMMENDED STUDIES AND TESTING

		None.
$	**0**	**TOTAL - RECOMMENDED STUDIES AND TESTING**

IV. DISTRICT REQUESTS

		None.
$	**0**	**TOTAL - DISTRICT REQUESTS**
$	**180,250**	**TOTAL - PLUMBING SYSTEMS**

ELECTRICAL/TECHNOLOGY SYSTEMS

I. EXISTING CONDITIONS

A. ORIGINAL BUILDING:

1. Service and Distribution:
   a. Service Entrance : Underground, Primary.
   b. Metering : Secondary.
   c. Voltages : 120/208, 3PH.
   d. Size : 1200 amperes.
   e. Main Dist. Panel : Circuit breaker.
   f. Local Panels : Circuit breaker.

2. General Wiring:
   a. Majority of wiring does meet the National Electrical Code.
   b. Location and quantity of convenience receptacles is adequate.
   c. Majority of convenience receptacles are of the grounded type.
   d. Location and quantity of light switches is adequate.

3. Fire Alarm System:
   a. Make : Harrington.
   b. Equipment : Stations, horn/strobes, smoke detectors, thermal detectors, municipal connection, fan shut down, door holders, drill switch, remote annunciator, trouble light.

4. Clock and Program System:
   a. Make : Simplex.
   b. Master : Electronic.
   c. Program : Bells.
   d. Secondary Clocks : Surface.

5. Intercom/Sound System:
   a. Make : Bogen.
   b. Equipment:
      (1) Console : Intercom channel, program channel, amplifier.
      (2) Classrooms : Call switches, wall speakers.
      (3) Stage : Speaker jack, microphone jack.
      (4) Gymnasium : Ceiling speakers.

6. Emergency Lighting/Power:
   a. Lighting:

	Local Batts.	Remote Batts.	Generator Connect.	Sufficient Lighting Yes	Sufficient Lighting No
(1) Gymnasium	X				X
(2) Corridors	X	X			X
(3) Cafetorium	X				X

II. CODE REQUIREMENTS

* $ 2,100 1. **Emergency Lights:** Install new emergency lights to improve safety at the following locations:
   a. Some corridors (additional);
   b. Cafetorium (additional);
   c. Gymnasium (additional).

$ 2,100 **TOTAL - CODE REQUIREMENTS WORK**

III. ARCHITECT'S AND ENGINEER'S RECOMMENDATIONS

III.A. HEALTH AND SAFETY IMPROVEMENTS

$ 69,800 1. **Cloth Wire:** Replace all remaining cloth (Type RHW insulated) wire throughout the building with new thermo-plastic insulated wire to improve safety.

$ 57,900 2. **Emergency Generator:** Install a new 125KW emergency generator in the building and install new emergency lighting in all areas of assembly and all corridors. Also generator shall be connected to heating plant and circulating pumps, kitchen refrigeration equipment, sound system, fire alarm system, telephone system and all exit lights in the building.

$ 127,700 **TOTAL - HEALTH AND SAFETY IMPROVEMENTS**

III.B. FACILITY IMPROVEMENTS

$ 58,700 1. **Fire Alarm System:** Replace existing fire alarm system including all detectors, bells, pull stations and all associated wiring with new addressable system including all necessary ADA upgrades.

$ 11,400 2. **Clock System:** Replace existing clock system including all secondary clocks and all associated wiring.

$ 4,700 3. **Exterior Lighting:** Replace existing exterior lighting and provide additional vandal resistant metal halide exterior lighting to increase building security.

$ 26,800 4. **Power Panels & Circuit Wiring:** Install additional power panels, with TVSS (transient voltage surge suppression), in each classroom wing to handle the additional circuit loads associated with new computers, televisions and similar electrical devices. Provide two additional branch circuits per classroom and one per office.

_____	$	53,800	5. **Stage Dimming System:** Replace existing rheostat controlled Stage dimming system with a new microprocessor based dimmer rack with remote control console. Also replace existing stage lighting fixtures to provide a complete new system.
_____	$	12,500	6. **Cafetorium Sound System:** Provide new sound system for Cafetorium including new professional quality speakers, sound amplifiers, equalizer, wireless microphone system and assistive listening system.
_____	$	31,400	7. **Convenience Receptacles:** Provide additional convenience receptacles in most classrooms to discourage the use of adapters and extension cords.
_____	$	14,400	8. **Keyless Entry System:** Provide new keyless entry system for up to four doors in the building including control panel, printer, sensors at doors, electronic door hardware and key-phobs for staff.
_____	$	15,100	9. **Entry Doors CCTV System:** Provide new closed circuit television system for up to four locations matching locations where keyless entry system is installed. System to consist of color IP cameras tied to a digital video recorder (DVR), which can be monitored over the district's current computer network.
_____	$	41,200	10. **Building Wide CCTV System:** Provide new closed circuit television system for the entire building including cameras in all corridors, computer rooms, lobbies and on the exterior of the building. System to consist of color IP cameras tied to digital video recorder(s) (DVR) which can be monitored over the district's current computer network.
_____	$	67,300	11. **Computer Network Hardware:** Provide all new 100baseT switches with 1000baseF backbone electronics in each telecommunications closet and to support existing network cabling infrastructure. Network electronic to include a core chassis in MDF and new edge switches in all IDF's.
_____	$	23,200	12. **Computer Network Wiring:** Provide four (4) new category 6 UTP computer drops in all classrooms with associated raceways and power to accommodate new VOIP telephone system and teachers computer.
_____	$	58,700	13. **Telephone System:** Replace the existing administrative telephone system with a new Voice Over IP (VOIP) system with voice mail, including new full feature telephones for all offices and classrooms. The telephones shall have the capability of being programmed with different levels of restriction from the new VOIP call manager, while still having transparent communication for features such as voice mail and district wide four digit dialing plan. The telephone system will be run over the existing district's LAN in the building. Price includes all required network switches, uninterruptible power supplies and assumes using existing network wiring.
_____	$	260,200	14. **Video on Demand System:** Provide new broad band video on demand system which would allow either networked computers or hand held infrared remotes to control a centrally located digital video server which will house all existing district media, and any other audio/video sources desired from each classroom or office in the building. The signal would be distributed over the new television distribution system. Price includes 42" plasma display televisions with associated mounting brackets for all classrooms and also a teacher's computer for each classroom to be used as a system control device.

	$ 16,300	15.	**Television System:** Replace existing cable distribution system with a new broadband cable television distribution system throughout the building. The new system will include distribution equipment with amplifiers, splitters, tapoffs and RG-6 & RG-11 coaxial cable with new television outlets in all classrooms. This system also includes control cabling to all television jack locations to support a future video on demand system.
$	**695,700**		**TOTAL – FACILITY IMPROVEMENTS**

III.C. ENERGY CONSERVATION

			None.
$	**0**		**TOTAL - ENERGY CONSERVATION MEASURES**

III.D. HANDICAPPED ACCESSIBILITY

	$ 5,500	1.	**Assistive Listening System:** Provide an assistive listening system for the Cafetorium.
$	**5,500**		**TOTAL - HANDICAPPED ACCESSIBILITY**

III.E. RECOMMENDED STUDIES AND TESTING

			None.
$	**0**		**TOTAL - RECOMMENDED STUDIES AND TESTING**

IV. DISTRICT REQUESTS

			None.
$	**0**		**TOTAL - DISTRICT REQUESTS**
$	**831,000**		**TOTAL - ELECTRICAL SYSTEMS**