Appendices

The following documents have been published in a separate volume of this study.

- Elementary Schools – M/E/P/FP Report *GGD*
- Elementary Schools – Cost Estimates *Essential Design*
- Elementary Schools – Structural Report for the Hastings School *Lim Consultants, Inc.*
- High School – E/P/FP Report *G/G/D*
- High School – Base renovation cost Estimate *Essential Design*
- High School – Food Service Report *Crabtree McGrath Associates*
- High School – Site Scope Memo *Warner Larson Associates*

The following documents are not included but are frequently referenced in this report and should be considered "incorporated by reference":

- High School – HVAC Systems Report-2008 *GGD*
- Elementary Schools – Master Plan—2006 *DPC*
- Enrollment Projections –12.2008 *Superintendent Paul Ash*

Elementary Schools - Cost Estimates

Lexington Elem. Schools
Master Plan Study

Bowman Elementary School

Executive Summary – Electrical

The existing electrical systems in general, although functioning, are at the end or have exceeded their useful life. Even with regular maintenance systems do deteriorate over the years. The life safety systems, due to code changes over the years, are not in compliance with current codes.

Existing Conditions

- The primary service runs overhead and feeds a 300 kva Utility Co. owned pad mounted transformer. Secondary service runs underground in one (1) 4" conduit. The secondary electrical service consists of a main switch rated at 400amp, 277/480 volt, 3∅, 4wire, a C/T cabinet and meter with a distribution panel. The equipment is located in the custodian's work room. Lighting and power panels are circuit breaker type and are rated at 120/208 volt and 277/480 volt, 3∅, 3wire. The existing panels do not appear to have spare circuit breakers for the addition of new lighting and power circuits. Dry type transformers are used for receptacle power. Most equipment was manufactured by General Electric. Various panels do not have required working clearance. The condition of the equipment is poor and has exceeded its useful life.

- Existing classroom lighting consists of (3) continuous rows of wraparound fixtures parallel with the exterior wall. Lights are controlled with one switch. No occupancy sensor exists.
  Stage lighting comprises of floor lights in front and track fixtures at stage.
  2 x 4 recessed fixtures are used in the Gymnasium with four (4) T5HO lamps and are in good condition.
  Kitchen lighting is through vaportight 4' fluorescent fixtures.
  Corridor lighting consists of wall mounted 1 x 4 surface wraparound fixtures. Corridors are controlled with local switches.
  Although lighting has been retrofitted with T8 lamps and electronic ballasts, fixtures are generally old and in poor condition.

- Existing site lighting consists of cobra heads on utility poles. The site appears to be dark. Building mounted metal halide floods also exist on photocell. Surface canopy lights of compact fluorescent exist at front and rear entrances.

- The existing emergency lighting system is through a LP gas generator rated at 12.5KW, 277/480v, 3∅, 4W and is manufactured by Onan. One automatic transfer switch manufactured by Onan is present. The system is not code compliant and the equipment is in poor condition. Retrofitted LED exit signs exist. There is inadequate coverage of exit signs.

- Generally classrooms have one receptacle per interior wall. One double duplex has been recently provided from computer grade panel to serve computer equipment. Several extension cords are being used. Outlets in kindergarten are not tamper resistant type.
  Kitchen floor receptacles not GFI type.
  Computer lab has extension cords running on floor to feed center tables.
  Receptacles are currently sparsely located and additional receptacles should be provided.

- The building is equipped throughout with an automatic fire alarm system. Existing strobes do not meet ADA. Notification to the fire department is by a Sigcom radio master box with exterior antenna, box #2725. Toilets do not have ADA Strobes.
  Strobe lights are mounted higher than 80" above floor as is required by ADA.
  The fire alarm control panel is manufactured by Simplex model 4002, 8 zone conventional (non-addressable). Pull stations exceed 48”-54” as required by ADA.
  Typical classroom has one smoke detector, no horn/strobes.
  Building is not sprinklered and does not have full coverage of smoke and heat detectors and does not have adequate coverage of horn/strobes.

- The existing classroom intercom consists of a Rauland Telecenter TC 2100. Classrooms have a wall phone and 2-way speaker for communications with Administration office. No paging speakers in corridors.

- Classroom clocks are manufactured by Simplex. A master time clock is present and is manufactured by Simplex.

- Classrooms do have a Category 5 computer network installed. Classrooms have 4 data drops for students and 1 and 1 CATV data for teacher. Computer lab has inadequate quantity of data drops for computers. School has cable TV and fiber optic services.

- Front and back entrances have an AIPHONE LEF-5 system with intercom/camera at each door with master at administration with door release.

- Security/intrusion consists of a NAPCO magnum alert 800 control panel connected to a remote central station. Infrared sensors exist in corridors, media center. Exterior doors not alarmed.

- No card access or Closed Circuit TV exists.

- No lightning protection exists.

- Portable classroom building is in good condition. Building is interconnected with main building for fire alarm system. Emergency lighting and exit signs are with battery back-up.

Proposed System Priorities

Priority 1: Immediate Needs and Requirements:

- Hood fire suppression system fire alarm conduit broken.
  » ***$300.00***

- Exposed wiring in freezer provide box and cover.
  » ***$300.00***

- Various kitchen receptacles not GFI. Provide GFI receptacles or GFI breakers.
  » ***$1,500.00***

- Exterior core classroom, receptacle cover missing.
  » ***$50.00***

- Portable classroom, men toilet, receptacle not GFI.
  » ***$100.00***

- Service electrode requires jumper around water meter for proper grounding.
  » ***$500.00***

- Electrical items under kitchen hood are required to shutdown upon activation of hood's suppression system.
  » ***$2,500.00***

- Add horn/strobes in cafeteria and library, currently none exist. Add strobes in toilets.
  » ***$7,500.00***

- One (1) wire guard for smoke detector on gym ceiling is loose and ready to drop.
  » ***$100.00***

- Add receptacles to eliminate extension cord use.
  » ***$10,000.00***

- Add fire alarm pull station at gymatorium.
  » ***$750.00***

Priority 2: 1 - 5 Year Expected Life:

- The existing fire alarm control panel, Simplex 4002, 1980's vintage, has reached the end of its life. Although some replacement parts are still available, other parts are not. Detectors compatible with this panel are still available. Should the panel fail and the replacement part not be available it would force the school to be under a fire watch. We recommend replacing the 4002 control panel with a current Simplex zoned 4006 panel on a one for one swap. This will allow existing wiring and devices to remain and allow additional devices to be provided. In light of the building not being sprinklered it is

recommended that additional smoke and heat detectors be provided for full coverage of the facility.
» ***$1.00/s.f. = $63,434.00***

- The normal/emergency lighting system should be tested by simulating a power failure and confirming that adequate emergency lighting exists in egress ways and other large spaces where required. Additional emergency lighting should be added where required including on the exterior at exit discharge doors.
  » ***$.25/s.f. = $15,859.00***

- Provide full coverage of exit signs where required for safe egress out of the facility.
  » ***$.10/s.f. = $6,343.00***

Priority 3: 5 – 10 Year Expected Life:

- Provide occupancy sensors to turn lights off in classroom, toilets, offices, gym, etc. to save energy when spaces are unoccupied. Utility Co. rebates may be available for energy conservation measures.
  » ***50 @ $200.00/unit = $10,000.00***

Priority 4 – Full Renovation of Systems (Gut Rehab)
» ***$25.00/s.f. = $1,585,850.00***

- New construction service ratings are designed for a demand load of 10 watts/s.f. The service capacity will be sized for 1200 amperes at 277/480 volt, 3∅, 4wire. New lighting and power panels will be provided to accommodate respective loads and located in electric rooms. A system of computer grade panelboards with double neutrals and integral surge suppressors fed from k-rated transformers will be utilized to mitigate the harmonic effects caused by computers and other electronics.

- Classroom lighting fixtures will consist of pendant mounted indirect fluorescent luminaries with T5HO lamps and electronic ballasts. The fixtures will be pre-wired for automatic dimming control where natural daylight is available and also for multi-level switching.

- Office lighting fixtures will consist of acrylic recessed direct fixtures with (2) T5 lamps and electronic ballasts. Two step ballasts will be provided for dual-level switching. Fully dimmable ballasts will be provided where natural daylight is available. Lighting levels will be approximately 30-50 foot candles in classrooms and offices.

- Gymatorium lighting will be comprised of direct fluorescent fixtures with T5H0 lamps and electronic ballasts. The fixtures will be provided with protective wire guards. The light level will be designed for approximately 30 foot candles. Occupancy sensors will be provided to turn lights off when unoccupied. Theatrical lights with a dimming system will be provided for performances.

- Corridor lighting will be comprised of recessed acrylic fixtures with (2) T5 lamps & 2 step dimming electronic ballasts for dual level switching. The corridor light level will be designed for approximately 20-foot candles.

- Cafeteria lighting will be pendant indirect fluorescent fixtures with Biax lamps & electronic ballasts. The light levels will be designed for approximately 30 foot candles with dual level switching.

- Kitchen and servery lighting will consist of recessed 2'x4' acrylic lensed troffers with aluminum frame doors with T5 lamps and electronic ballasts. Light levels will be approximately 50-75 foot candles.

- Each area will be locally switched and designed for multi-level controls. Each classroom, office space and toilet rooms will have an occupancy sensor to turn lights off when unoccupied. Daylight sensors will be installed in each classroom and perimeter spaces for automatic dimming of light fixtures.

- The entire school will be controlled with an automatic lighting control system using the lighting panelboards with programmable breakers for programming lights on & off.

- Exterior site lighting fixtures for area lighting will be pole mounted long life, energy efficient LED luminaries in the parking area and roadways. Building perimeter fixtures will be wall mounted compact fluorescent over exterior doors. The exterior lighting will be connected to the automatic lighting control system for photocell on and timed off operation.

- An exterior natural gas emergency generator with a sound attenuated aluminum enclosure will be provided. Light fixtures and LED exit signs will be installed to serve all egress areas such as corridors, intervening spaces, toilets, and exit discharge exterior doors. The administration area lighting will be connected to the emergency generator. The generator will be sized to include life safety systems, boilers and circulating pumps, communications systems, kitchen refrigeration, etc.

- Each classroom will have a minimum of (2) duplex receptacles per teaching wall and (2) double duplex receptacles on dedicated circuits at classroom computer workstations. The teacher's workstation will have a double duplex receptacle also on a dedicated circuit.

- Office areas will generally have (1) duplex outlet per wall. At each workstation a double duplex receptacle will be provided.

- Corridors will have a cleaning receptacle at approximately 30-40 foot intervals.

- Exterior weatherproof GFI receptacles will be installed at exterior doors.

- A fire alarm and detection system in compliance with ADA will be provided with battery back-up. The system will be of the addressable type where each device will be identified at the control panel and remote annunciator by device type and location to facilitate search for origin of alarms. Smoke detectors will be provided in open areas, corridors,

and other egress ways. The sprinkler system will be supervised for water flow and tampering with valves. Speaker/strobes will be provided in egress ways, classrooms, assembly spaces, open areas and other large spaces. Strobe only units will be provided in single toilets and conference rooms.

- Manual pull stations will be provided at exit discharge doors.

- The system will be remotely connected to automatically report alarms to fire department via the radio master box.

- A three phase centralized uninterruptible power supply (UPS) system will be provided with battery back up. The system will provide conditioned power to sensitive electronic loads, telecommunication systems, bridge over power interruptions of short duration and allow an orderly shutdown of servers, communication systems, etc. during a prolonged power outage. The UPS system will also be connected to the stand-by generator.

- A system of lightning protection will be provided. The system will be installed in compliance with the provisions of the latest "Code for Protection Against Lightning" for buildings as adopted by the National Fire Protection Association and the Underwriters' Laboratories, Inc. for a UL Master Label System.

- The lightning protection equipment will include air terminals, conductors, conduits, fasteners, connectors, ground rods, etc.

- A Closed Circuit TV system will consist of computer servers with image software, computer monitors and IP based closed circuit TV cameras. The head end server will be located in the head end MDF room and will be rack mounted. The system can be accessed from any PC within the facility or externally via an IP address. Each camera can be viewed independently. The network video recorders NVR's will record all cameras and store this information for 21days at 15 images per second (virtual real time).

  The location of the cameras is generally in corridors and exterior building perimeter. The exterior cameras are pan-tilt-zoom type.

  The system will fully integrate with the access control system to allow viewing of events from a single alarm viewer. Camera images and recorded video will be linked to the access system to allow retrieval of video that is associated with an event.

- An intrusion system will consists of security panel, keypads, motion detectors and door contacts. The system is addressable which means that each device will be identified when an alarm occurs. The system is designed so that each perimeter classroom with grade access will have dual tech sensors along the exterior wall and corridors, door contacts at each exterior door.

  The system can be partitioned into several zones. Therefore, it is possible to use the Gym area while the remainder of the school remains alarmed.

The system will include a digital transmitter to summons the local police department in the event of an alarm condition

The intrusion system will be connected to the automated lighting control system to automatically turn on lighting upon an alarm.

- A card access system includes a card access controller, door controllers and proximity readers/keypads. Proximity readers will be located at various locations. Each proximity reader will have a distinctive code to identify the user and a log will be kept in memory. The log within the panel can be accessed through a computer.

  The alarm condition will also initiate real time recording on the integrated CCTV System. The system may be programmed with graphic maps allowing the end-user to quickly identify alarm conditions and lock/unlock doors.

  The system is modular and may be easily expanded to accommodate any additional devices.

- A renewable energy system will consist of a grid connected photovoltaic PV system intended to reduce the facilities demand for power. The photovoltaic system will operate in conformance with the green schools initiative. System will consist of roof mounted photovoltaic modules, weather station, data acquisition system and inverters. Interactive display terminals will be provided for students and for public awareness of the benefits of renewable energy.

- The data system infrastructure will consist of fiber optic backbone cabling. Horizontal wiring will consist of Category 6 UTP Plenum rated cabling for both data and telephone system for gigabit connectivity. The telephone infrastructure will accommodate Centrex, PBX or VOIP based phone systems.

- Each classroom will have 4 data outlets for student computers. Two data, one voice and CATV with video and audio connections to a ceiling projector will be provided at teacher's station with interconnectivity to a smartboard. A wall phone outlet with 2 way ceiling speaker will be provided for communications with administration. Clock will be wireless, part of a GPS/LAN based centralized clock system. Wireless access points with spare fibre will be provided on selected classrooms and other spaces.

- The cafeteria and gymnasium will each have a local sound system with assistive listening devices.

- A central paging system will be provided and integrated with the telephone system.

Lexington Elem. Schools
Master Plan Study

Bowman Elementary School

Executive Summary - HVAC

The Bowman Elementary School has received below average maintenance of the HVAC systems over its occupied years. Even with adequate maintenance, through normal operation systems do gradually deteriorate due to scale, poor water conditions, and lack of preventive maintenance. Systems will gradually deteriorate to a point of exceeding their maximum serviceable life. This building is a typical example of one such project. While generally speaking, most systems are operating and maintaining reasonable space temperature control, but due to the extreme antiquated nature of the mechanical systems and their gradual scaling of the various piping systems, heat transfer rates have become reduced and the overall system is taxed to a point of inefficiency being created by the slowly depreciating system. While there are no catastrophic failures obvious with the present systems, the systems could continuously be repaired and modified on a sectional basis that will keep the systems operating maintaining acceptable space temperature control however, continued operation will be at the expense of increased operating costs due to inefficiency in heat transfer and through the generally antiquated nature of the systems themselves. The systems installed within this building are approaching their maximum serviceable life. With overall maintenance, cleaning and calibrating of the system, a continued limited service could be achieved however, unpredictable at best. At this time it is not necessary that the systems be modified to prevent a near catastrophic failure, but a continued reuse of the systems will continue to produce unsatisfactory results in terms of overall air quality, temperature control and operating costs.

Existing Conditions:

- The boiler room is provided with two (2) individual HB Smith 450 MILS cast iron sectional boilers generating low-pressure steam. Each boiler is provided with dual low water cut-offs as well as all operating and safety controls and a firematic switch. It was noted that there was surface contamination on the mud drums adjacent to the cast iron sectional nipples indicating that the nipples could be leaking. Each boiler is provided with a single no. 2 fuel oil burner and generates low-pressure steam for distribution. Considering the age of approximately forty-five (45) years, each boiler would suggest that it has approximately five (5) years of usable life.

- The breeching from each boiler appears to be welded black steel and is insulated with what appears to be calcium silicate insulation with a canvas jacket. Each boiler is provided with an individual induced draft fan located at the rear of each boiler which conveys combustion gases from each boiler to a masonry chimney. The induced draft fans are contaminated with soot and are reaching the end of their serviceable life.

- No. 2 fuel oil is recirculated from a buried 10,000 gallon double wall tank installed in 1993. It is provided with leak containment, leak monitoring, double wall piping and fluid level controls. Also provided is a central monitoring panel to detect the presence of fluid within the containment vessels which is not operating. Fuel oil is distributed throughout

the boiler room through a duplex gear driven fuel oil transfer set which includes pumps, strainers, and isolation valves. It appears that this pumping system is original to the building of approximately 1965 and the fuel oil pumps are showing signs of leakage and are slightly contaminated in the area of the pump bases and consideration should be given to a generalized upgrade. Also located within the pump area are two (2) steam shell and tube heat exchangers for the heating of the original no. 6 fuel oil. No. 6 fuel oil has been discontinued in use and no. 2 fuel oil has replaced it however, custodial personnel continue to use the heating system to preheat the no. 2 fuel oil. This does no harm in the overall operation however, is an energy waste.

- Condensate is returned to the boiler room from the building through a schedule 80 black steel condensate return system. Condensate is returned to the boiler room to a central condensate receiver system which is located on the floor of the boiler room. The floor mounted receiver is provided with two (2) individual boiler feed pumps which appear to be of primary and standby arrangement each of which pumps to a common distribution feed water piping to each boiler. Considering the overall age of the condensate system consideration should be given to an overall upgrade.

- Low-pressure steam and condensate is distributed through a series of tunnels which feed throughout the building. Steam piping appears to be schedule 40 black steel and condensate appears to be schedule 80 black steel both of which are insulated with what appears to be fiberglass insulation with an all service jacket. It was not possible to evaluate the piping located within these tunnels nor was it possible to determine the condition of the insulation however, considering its age of approximately forty-five (45) years and the noticeable steam leaks consideration should be given to a generalized upgrade of all piping.

- The automatic temperature control system is of the pneumatic type and is provided with a single storage tank with duplex compressors and motors. It does appear that these compressors are operating correctly but not maintaining adequate compressed air flow to the entire control system. The system was recently provided with a refrigerated air dryer which eliminates moisture within the pneumatic lines. Some corrosion was noted on the pneumatic lines resulting from moisture within the tubing. Consideration for upgrading should be considered.

- The kitchen is provided with a single wall stainless steel exhaust hood located over the cooking area. This exhaust hood is provided with an individual exhaust system through a welded steel exhaust ductwork system which connects to a roof mounted exhaust fan. The exhaust hood was noted to have vapor tight incandescent lights. The fire suppression system currently installed is not compatible with the installed sprinkler head located in the hood.

- Make-up air for the kitchen and its associated hood is through an air-handling unit located at the ceiling. This air-handling unit is of the return air/outside air design and is provided with a steam heating coil with valve control, supply fan, and filters. Sidewall diffusers provide supply air to the entire kitchen area and generally are exhausted 100% through the associated exhaust hood.

- Heating of the entire kitchen area is through two (2) individual ceiling mounted classroom unit ventilators which are designed to introduce one hundred percent (100%) outside air for a source of make-up for the kitchen hood.

- The cafeteria is provided with a single air-handling unit which distributes to wall mounted supply registers located along one wall of the cafeteria. Galvanized sheet metal ductwork provides heated and ventilation air which is noted to be uninsulated. A source of outside air ventilation is provided for this air-handling unit to meet code requirements and the unit is provided with a low-pressure steam heating coil, supply fan, and filters. Return air is drawn through a return air opening at the base of the air-handling unit. Also located within the space are two (2) individual wall mounted exhaust registers that communicate to a roof mounted exhaust fan through a galvanized sheet metal exhaust system. The air-handling unit is controlled through a wall mounted pneumatic thermostat which is noted to be antiquated. Considering the overall age of all equipment and systems within the space consideration should be given to an overall upgrade.

- The building classrooms are provided with a wall mounted classroom unit ventilator. The unit ventilators are all of the low-pressure steam design and are provided with automatic control valves, outside air intake louver for the introduction of outside ventilation air, as well as filters, a supply fan, and automatic temperature controls. It was noted that each of the unit ventilators were extremely antiquated many of which were slightly damaged on the surface, loud and many of which were not operating. The classrooms were also provided with individual exhaust registers. These exhaust grills communicate through a galvanized sheet metal exhaust system to roof mounted exhaust fan and it does appear that this system does operate in a satisfactory manner however, consideration should be given to an upgrade.

- Each classroom space is also provided with a wall mounted pneumatic thermostat which controls the unit's ventilator control valve as well as the outside air dampers.

- The corridor areas throughout the building were provided with exhaust ventilation air however, supply air was not provided which is non-code compliant and should be upgraded.

- The corridor's were also provided with individual wall mounted convectors which were of the low pressure steam design and provide heating through the control of wall mounted pneumatic thermostats.

- The art/teachers work room area is provided with an individual air-handling unit located above the ceiling of the art room. This unit is provided with a source of outside ventilation air, low pressure steam heating coil, supply fan and filters. Considering the generalized age of all equipment consideration should be given to an upgrade.

- The media center is provided with an air-handling unit located above the ceiling. This area is provided with an individual air-handling unit located above the ceiling. This air-handling unit is provided with a source of outside ventilation air, low-pressure steam

heating coil, supply fan and filters. Considering the generalized age of all equipment consideration should be given to an upgrade.

- The media center is also provided with an individual exhaust system which is made up of two (2) individual exhaust registers generally located in the wall. These exhaust registers communicate to a galvanized sheet metal exhaust system to a roof mounted exhaust fan. Generally considering the age of the equipment consideration should be given to a generalized upgrade.

- The administration area is provided with a single roof mounted air conditioning unit. This unit is of the single zone design and provides air-conditioned as well as ventilation air through one single zone throughout individual administration areas. Each occupied room is provided with a ceiling mounted supply diffuser which was noted to be slightly dirty. Considering its general age consideration should be given to an upgrade.

- Also located within the various offices of the administration area were varying lengths of fintube radiation located along the exterior wall. The fintube radiation was noted to be dirty and in many instances it was damaged with various end covers missing and slight surface contamination. The fintube radiation is controlled through an individual wall mounted pneumatic thermostats all of which were noted to be antiquated. Considering its general appearance and age consideration should be given to an upgrade.

- The interior classrooms were provided with ceiling suspended classroom unit ventilators which free blow into the occupied space through a single discharge grill horizontally located on the unit ventilator. Each unit ventilator is provided with an outside air intake duct which communicates to a roof mounted hood which was insulated with what appears to be fiberglass insulation. The unit ventilators were very typical to those of a typical classroom which include a steam heating coil, filters, and supply fan. The unit is provided with a wall mounted pneumatic thermostat for control and it also was antiquated.

- The individual classrooms were also provided with fintube radiation located under the clear story glass on the exterior wall. This fintube radiation was noted to be slightly dirty and slightly damaged.

- Also located within these classrooms was a wall mounted exhaust register. It was noted that these exhaust registers communicate to roof mounted exhaust fans through a galvanized sheet metal exhaust system. As we understand it, all systems do operate in a satisfactory manner however, considering the age of all equipment consideration should be given to an upgrade.

- The portable classrooms are each provided with a single roof mounted heating and ventilating and air conditioning unit. Each rooftop unit is provided with electric cooling and propane heating. The rooftop units are controlled through individual electric wall mounted thermostats. There is an offensive odor present in the portable classrooms which could relate to excessive vapor pressure resulting in mold formation. Further investigation should be considered to determine the contributing conditions.

- The building public toilets were provided with wall mounted exhaust registers that were noted to be slightly dirty however, as we understand it do operate. These exhaust registers communicate to roof mounted exhaust fans through a galvanized sheet metal exhaust system.

- Make-up air for the individual toilets was through the use of louvers located within the doors.

- Heating of the toilet spaces is through the use of wall mounted convection heating. It was noted that the heating elements were slightly damaged with surface contamination. The individual radiation elements were controlled by wall mounted pneumatic thermostats which were noted to be antiquated. Consideration should be given to an upgrade based purely on age and the antiquated nature of all equipment.

Proposed System Priorities

Priority 1 – Immediate Needs and Requirements

- Veeder Root oil tank monitoring system is not operating
  » ***$2,000.00***

- Wasted energy resulting from pre-heating No.2 fuel oil
  » ***$2,000.00***

- Steam leaks in steam tunnels
  » ***$25,000.00***

- Fire suppression system in Kitchen is not compatible with sprinkler head in hood
  » ***$250.00***

- Code required ventilation air not provided in corridors
  » ***$44,000.00***

- Calibration of the pneumatic temperature controls
  » ***$31,500.00***

- CO2 Demand ventilation control in Classroom unit ventilators
  » ***$27,000.00***

- Verify shaft trueness on all unit ventilators, exhaust fans and air handling units and replace if necessary
  » ***$13,000***

- Verify conditions of shaft bearings on all unit ventilators, exhaust fans and air handling units and replace if necessary
  » ***$13,000***

- Clean fan wheels, coils, dampers, and outside air louvers on all unit ventilators, exhaust fans and air handling units
  » ***$13,000***

Priority 2 – Five Year Needs

- In approximately five years the heating plant will be at the end of its serviceable life therefore, within that time frame we recommend the installation of (2) new gas fired steam boilers with modulating gas for energy savings.
  » ***$250,000***

- All air handling units and classroom unit ventilators would remain as is and be reused to accommodate desired room temperatures.

Priority 3 – Ten Year Needs

- The recently installed heating plant will be reused and converted from steam to hot water while reusing the modulating gas burners and adding boiler water reset for additional energy savings.
  » ***$3,500***

- All unit ventilators will be replaced with hot water unit ventilators reusing CO2 demand ventilation controls.
  » ***$202,500***

- All steam piping will be removed and a new schedule 40 black steel hot water system will be installed.
  » ***$252,000***

- Provide a direct digital control system with internet access and colored graphics.
  » ***$315,000***

- Replace all air handling units serving the Kitchen, Cafeteria, Art/Teachers Work Room, Media Center and Administration Area.
  » ***$135,000***

- Replace all exhaust fans and internally clean exhaust ductwork.
  » ***$68,000***

Priority 4 – Full Renovation of Systems

Regarding the HVAC systems, the projection will be limited to repairing the necessary systems incorporated in the ten year needs.

Lexington Elem. Schools
Master Plan Study

Bowman Elementary School

Executive Summary - Plumbing/Fire Protection

The Bowman Elementary School has received minimal maintenance on the plumbing systems and equipment over its occupied years. Even with adequate maintenance, systems will gradually deteriorate due to scale and poor water conditions. Although most of the systems are working adequately at this time, the major equipment and systems are near the end of their useful life. Along with aging systems, many of the systems are not up to current codes.

Fixtures:

- Fixtures are generally original indicating the time of their original installation.
- The water closets are generally wall hung vitreous china, flush valve type with siphon jet action. The flush valves do not appear meet water conservation requirements.
- The urinals are wall hung vitreous china, flush valve type with blow out action. The flush valves do not appear to meet water conservation requirements.
- The lavatories are wall hung vitreous china. The faucets are hot and cold water type and do not meet the water conservation requirements. The piping is standard p-trap and is not insulated to meet the accessibility codes.
- The classroom sinks are single bowl, stainless steel sinks with single lever faucets and drinking fountains as part of the sink. The sinks and faucets are in fair condition but do not appear to meet accessibility requirements.
- The drinking fountains are generally wall hung stainless with single lever controls. Fixtures appear to be in fair condition. The fixture and controls do not meet accessibility codes.

Water System:

- The domestic water service enters the building in the Boiler Room. The service entering the building is 4 in. and is complete with a water meter as well as a pressure reducing valve with by-pass. The pressure reducing valve pressure is set to reduce the incoming 100 psi down to the set pressure 60 psi. There is no backflow preventer on the municipal water supply.
- The domestic water heater is supplied from a storage tank with a steam shell and tube heat exchanger supplied from the heating boilers. This type of set up requires the heating boilers to run when there is a need for domestic hot water resulting in an excessive amount of wasted energy.

- There is a master thermostatic mixing valve on the domestic hot water system prior to being distributed to the building hot water system. The domestic hot water is distributed at 130 degrees F. There is no separate 140 degree F. hot water supplied to the Kitchen.

Drainage System:

- The sanitary and storm drainage systems are piped with cast iron. The exposed piping is visibly in good condition.

- The sanitary drainage system is piped to a municipal sewer system.

- The roof is generally flat and is drained by roof drains and a roof drainage system, which exits the building and connects to a municipal storm drainage system.

Natural Gas System:

- The building has no natural gas service at this time.

- There are four individual propane tanks on site that provide fuel for heating of the portable classrooms and fuel for the generator.

Kitchen:

- The kitchen equipment is all generally original and indicates the vintage of the time of installation.

- The cooking equipment is all electric and in fair condition.

- There is a grease trap in the kitchen that appears to be dedicated for the 3-pot sink. All other fixtures appear to go to the sanitary drainage system. There is no dedicated kitchen waste system or an exterior grease trap.

Fire Protection:

- There is no Fire Protection Sprinkler System installed in this school.

Proposed System Priorities

Priority 1 – Immediate Needs and Requirements:

- There are no immediate needs or requirements for this building. All equipment appears to be operating properly.

Priority 2 – 5 Year Requirements:

- A new gas fired water heater along with a thermostatic mixing valve that will supply 120 degree F. hot water to the building.
  - » ***$15,000.00***

- A new natural gas service will be installed to the building to provide fuel for heating and domestic hot water. Natural gas will also be provided to a generator if one is provided as part of the design.
  - » ***$5,000.00***

Priority 3 – 10 Year Requirements:

- The domestic water heater installed under Priority 2 will be utilized.

- The gas service installed under Priority 2 will be utilized.

- A new domestic 140 degree F. hot water and hot water recirculating piping system will be included to supply the kitchen needs.
  - » ***$5,000.00***

- All plumbing fixtures will be replaced with new water conserving type fixtures capable of saving approximately 30% of overall water usage of the building.
  - » ***$40,000.00***

Priority 4 – Full Renovation of Systems:

- All plumbing fixtures will be replaced with new water conserving type fixtures capable of saving approximately 30% of overall water usage of the building.

- The existing domestic water service appears to be sufficient for the existing building as well as any additions that may be incorporated into the design. A new gas fired water heater along with a thermostatic mixing valve that will supply 120 degree F. hot water to the building as well as 140 degree F hot water to the Kitchen.

- A new domestic cold, hot and hot water recirculating piping system will be included as part of the new domestic water systems.

- The existing drainage systems will be modified and reused as possible to accommodate the modifications to the existing building and any additions.

- A new natural gas service will be installed to the building to provide fuel for heating, domestic hot water and cooking. Natural gas will also be provided to a generator if one is provided as part of the design.

- Kitchen design will be based on the equipment provided by the kitchen equipment consultant including domestic hot and cold water, gas for cooking and drainage of all equipment. A dedicated kitchen waste system will be installed to convey all kitchen waste to an exterior grease trap prior to being discharged into the site sewer system.

- A new fire protection sprinkler system will be installed to provide 100% coverage of the entire existing building as well as all additions. This will include a new fire service to the building and distribution system with quick response sprinklers and fire department valves where required.

Lexington Elem. Schools
Master Plan Study

Bridge Elementary School

Executive Summary – Electrical

The existing electrical systems in general, although functioning, are at the end or have exceeded their useful life. Even with regular maintenance systems do deteriorate over the years. The life safety systems, due to code changes over the years, are not in compliance with current codes.

Existing Conditions

- The primary service runs overhead and feeds a 300 kva Utility Co. owned pad mounted transformer. Secondary service runs underground in one (1) 4" conduit. The secondary electrical service consists of a main switch rated at 400amp, 277/480 volt, 3∅, 4wire, a C/T cabinet and meter with a distribution panel. The equipment is located in the custodian's work room. Lighting and power panels are circuit breaker type and are rated at 120/208 volt and 277/480 volt, 3∅, 3wire. The existing panels do not appear to have spare circuit breakers for the addition of new lighting and power circuits. Dry type transformers are used for receptacle power. Most equipment was manufactured by General Electric. Various panels do not have required working clearance. The condition of the equipment is poor and has exceeded its useful life.

- Existing classroom lighting consists of (3) continuous rows of wraparound fixtures parallel with the exterior wall. Lights are controlled with one switch. No occupancy sensor exists.
  Stage lighting comprises of spot lights in front and track fixtures at stage.
  1 x 4 surface fixtures are used in the Gymnatorium with four (4) T5HO lamps and are in good condition.
  Kitchen lighting is through vaportight 4' fluorescent fixtures.
  Corridor lighting consists of wall mounted 1 x 4 surface wraparound fixtures. Corridors are controlled with local switches.
  Although lighting has been retrofitted with T8 lamps and electronic ballasts, fixtures are generally old and in poor condition.

- Existing site lighting consists of floods on utility poles. The site appears to be dark. Building mounted metal halide floods also exist on photocell. Surface canopy lights of compact fluorescent exist at front and rear entrances.

- The existing emergency lighting system is through a LP gas generator rated at 12.5KW, 277/480v, 3∅, 4W and is manufactured by Onan. Generator does not currently start automatically. One automatic transfer switch manufactured by Onan is present. The system is not code compliant and the equipment is in poor condition. Retrofitted LED exit signs exist. There is inadequate coverage of exit signs.

- Generally classrooms have one receptacle per interior wall. One double duplex has been recently provided from computer grade panel to serve computer equipment. Several extension cords are being used. Outlets in kindergarten are not tamper resistant type.
  Kitchen floor receptacles not GFI type.
  Computer lab has extension cords running on floor to feed center tables.
  Receptacles are currently sparsely located and additional receptacles should be provided.

- The building is equipped throughout with an automatic fire alarm system. Existing strobes do not meet ADA. Notification to the fire department is by a Sigcom radio master box with exterior antenna, box #4532. Toilets do not have ADA Strobes.
  Strobe lights are mounted higher than 80" above floor as is required by ADA.
  The fire alarm control panel is manufactured by Spectronics 641 Series, 8 zone conventional (non-addressable). Pull stations exceed 48”-54” as required by ADA.
  Typical classroom has one smoke detector, no horn/strobes.
  Building is not sprinklered and does not have full coverage of smoke and heat detectors and does not have adequate coverage of horn/strobes.

- The existing classroom intercom consists of a Rauland Telecenter TC 2100. Classrooms have a wall phone and 2-way speaker for communications with Administration office. No paging speakers in corridors.

- Classroom clocks are manufactured by Simplex. A master time clock is present and is manufactured by Simplex.

- Classrooms do have a Category 5 computer network installed. Classrooms have 4 data drops for students and 1 data and 1 CATV for teacher. Computer lab has inadequate quantity of data drops for computers. School has cable TV and fiber optic services.

- Front and back entrances have an AIPHONE LEF-5 system with intercom/camera at each door with master at administration with door release.

- Security/intrusion consists of a NAPCO magnum alert 800 control panel connected to a remote central station. Infrared sensors exist in corridors, media center. Exterior doors not alarmed.
- No card access or Closed Circuit TV exists.

- No lightning protection exists.

Proposed System Priorities:

Priority 1 - Immediate Needs

- Generator does not start automatically upon normal power failure. Generator is currently started manually. Code requires generator to start automatically and assume load within 10 seconds.
  » ***$2,500.00***

- Various kitchen receptacles not GFI.
  » ***$1,500.00***

- Portable men toilet, receptacle not GFI.
  » ***$100.00***

- Service electrode requires jumper around water meter for proper grounding.
  » ***$500.00***

- Electrical items under kitchen hood are required to shutdown upon activation of hood's suppression system.
  » ***$2,500.00***

- Add horn/strobes in kitchen, cafeteria and library, currently none exist. Add strobes in toilets.
  » ***$7,500.00***

- Add receptacles to eliminate extension cord use.
  » ***$10,000.00***

- No pull station at gym exterior door.
  » ***$750.00***

Priority 2: 1 – 5 Year Expected Life:

- The existing fire alarm control panel, Spectronics 641 Series, late 1980's vintage, is still a current panel for this manufacturer with available parts. Detectors compatible with this panel are still available. This will allow existing wiring and devices to remain and allow additional devices to be provided. In light of the building not being sprinklered it is recommended that additional smoke and heat detectors be provided for full coverage of the facility.
  » ***$1.00/s.f. = $63,434.00***

- The normal/emergency lighting system should be tested by simulating a power failure and confirming that adequate emergency lighting exists in egress ways and other large spaces where required. Additional emergency lighting should be added where required including on the exterior at exit discharge doors.
  » ***$.25/s.f. = $15,859***

- Provide full coverage of exit signs where required for safe egress out of the facility.
  » ***$.10/s.f. = $6,343.00***

Priority 3: 5 – 10 Year Expected Life:

- Provide occupancy sensors to turn lights off in classroom, toilets, offices, gym, etc. to save energy when spaces are unoccupied. Utility Co. rebates may be available for energy conservation measures.
  » ***50 @ $200.00/unit = $10,000.00***

Priority 4 – Full Renovation of Systems (Gut Rehab)
» ***$25.00/s.f. = $1,585,850.00***

- New construction service ratings are designed for a demand load of 10 watts/s.f. The service capacity will be sized for 1200 amperes at 277/480 volt, 3∅, 4wire. New lighting and power panels will be provided to accommodate respective loads and located in electric rooms. A system of computer grade panelboards with double neutrals and integral surge suppressors fed from k-rated transformers will be utilized to mitigate the harmonic effects caused by computers and other electronics.

- Classroom lighting fixtures will consist of pendant mounted indirect fluorescent luminaries with T5HO lamps and electronic ballasts. The fixtures will be pre-wired for automatic dimming control where natural daylight is available and also for multi-level switching.

- Office lighting fixtures will consist of acrylic recessed direct fixtures with (2) T5 lamps and electronic ballasts. Two step ballasts will be provided for dual-level switching. Fully dimmable ballasts will be provided where natural daylight is available. Lighting levels will be approximately 30-50 foot candles in classrooms and offices.

- Gymatorium lighting will be comprised of direct fluorescent fixtures with T5H0 lamps and electronic ballasts. The fixtures will be provided with protective wire guards. The light level will be designed for approximately 30 foot candles. Occupancy sensors will be provided to turn lights off when unoccupied. Theatrical lights with a dimming system will be provided for performances.

- Corridor lighting will be comprised of recessed acrylic fixtures with (2) T5 lamps & 2 step dimming electronic ballasts for dual level switching. The corridor light level will be designed for approximately 20-foot candles.

- Cafeteria lighting will be pendant indirect fluorescent fixtures with Biax lamps & electronic ballasts. The light levels will be designed for approximately 30 foot candles with dual level switching.

- Kitchen and servery lighting will consist of recessed 2'x4' acrylic lensed troffers with aluminum frame doors with T5 lamps and electronic ballasts. Light levels will be approximately 50-75 foot candles.

- Each area will be locally switched and designed for multi-level controls. Each classroom, office space and toilet rooms will have an occupancy sensor to turn lights off when unoccupied. Daylight sensors will be installed in each classroom and perimeter spaces for automatic dimming of light fixtures.

- The entire school will be controlled with an automatic lighting control system using the lighting panelboards with programmable breakers for programming lights on & off.

- Exterior site lighting fixtures for area lighting will be pole mounted long life, energy efficient LED luminaries in the parking area and roadways. Building perimeter fixtures will be wall mounted compact fluorescent over exterior doors. The exterior lighting will be connected to the automatic lighting control system for photocell on and timed off operation.

- An exterior natural gas emergency generator with a sound attenuated aluminum enclosure will be provided. Light fixtures and LED exit signs will be installed to serve all egress areas such as corridors, intervening spaces, toilets, and exit discharge exterior doors. The administration area lighting will be connected to the emergency generator. The generator will be sized to include life safety systems, boilers and circulating pumps, communications systems, kitchen refrigeration, etc.

- Each classroom will have a minimum of (2) duplex receptacles per teaching wall and (2) double duplex receptacles on dedicated circuits at classroom computer workstations. The teacher's workstation will have a double duplex receptacle also on a dedicated circuit.

- Office areas will generally have (1) duplex outlet per wall. At each workstation a double duplex receptacle will be provided.

- Corridors will have a cleaning receptacle at approximately 30-40 foot intervals.

- Exterior weatherproof GFI receptacles will be installed at exterior doors.

- A fire alarm and detection system in compliance with ADA will be provided with battery back-up. The system will be of the addressable type where each device will be identified at the control panel and remote annunciator by device type and location to facilitate search for origin of alarms. Smoke detectors will be provided in open areas, corridors, and other egress ways. The sprinkler system will be supervised for water flow and tampering with valves. Speaker/strobes will be provided in egress ways, classrooms,

assembly spaces, open areas and other large spaces. Strobe only units will be provided in single toilets and conference rooms.

- Manual pull stations will be provided at exit discharge doors.

- The system will be remotely connected to automatically report alarms to fire department via the radio master box.

- A three phase centralized uninterruptible power supply (UPS) system will be provided with battery back up. The system will provide conditioned power to sensitive electronic loads, telecommunication systems, bridge over power interruptions of short duration and allow an orderly shutdown of servers, communication systems, etc. during a prolonged power outage. The UPS system will also be connected to the stand-by generator.

- A system of lightning protection will be provided. The system will be installed in compliance with the provisions of the latest "Code for Protection Against Lightning" for buildings as adopted by the National Fire Protection Association and the Underwriters' Laboratories, Inc. for a UL Master Label System.

- The lightning protection equipment will include air terminals, conductors, conduits, fasteners, connectors, ground rods, etc.

- Closed Circuit TV system will consist of computer servers with image software, computer monitors and IP based closed circuit TV cameras. The head end server will be located in the head end MDF room and will be rack mounted. The system can be accessed from any PC within the facility or externally via an IP address. Each camera can be viewed independently. The network video recorders NVR's will record all cameras and store this information for 21days at 15 images per second (virtual real time).
  The location of the cameras is generally in corridors and exterior building perimeter. The exterior cameras are pan-tilt-zoom type.
  The system will fully integrate with the access control system to allow viewing of events from a single alarm viewer. Camera images and recorded video will be linked to the access system to allow retrieval of video that is associated with an event.

- An intrusion system will consists of security panel, keypads, motion detectors and door contacts. The system is addressable which means that each device will be identified when an alarm occurs. The system is designed so that each perimeter classroom with grade access will have dual tech sensors along the exterior wall and corridors, door contacts at each exterior door.
  The system can be partitioned into several zones. Therefore, it is possible to use the Gym area while the remainder of the school remains alarmed.
  The system will include a digital transmitter to summons the local police department in the event of an alarm condition
  The intrusion system will be connected to the automated lighting control system to automatically turn on lighting upon an alarm.

- A card access system includes a card access controller, door controllers and proximity readers/keypads. Proximity readers will be located at various locations. Each proximity reader will have a distinctive code to identify the user and a log will be kept in memory. The log within the panel can be accessed through a computer.
  The alarm condition will also initiate real time recording on the integrated CCTV System. The system may be programmed with graphic maps allowing the end-user to quickly identify alarm conditions and lock/unlock doors.
  The system is modular and may be easily expanded to accommodate any additional devices.

- A renewable energy system will consist of a grid connected photovoltaic PV system intended to reduce the facilities demand for power. The photovoltaic system will operate in conformance with the green schools initiative. System will consist of roof mounted photovoltaic modules, weather station, data acquisition system and inverters. Interactive display terminals will be provided for students and for public awareness of the benefits of renewable energy.

- The data system infrastructure will consist of fiber optic backbone cabling. Horizontal wiring will consist of Category 6 UTP Plenum rated cabling for both data and telephone system for gigabit connectivity. The telephone infrastructure will accommodate Centrex, PBX or VOIP based phone systems.

- Each classroom will have 4 data outlets for student computers. Two data, one voice and CATV with video and audio connections to a ceiling projector will be provided at teacher's station with interconnectivity to a smartboard. A wall phone outlet with 2 way ceiling speaker will be provided for communications with administration. Clock will be wireless, part of a GPS/LAN based centralized clock system. Wireless access points with spare fibre will be provided on selected classrooms and other spaces.

- The cafeteria and gymnasium will each have a local sound system with assistive listening devices.

- A central paging system will be provided and integrated with the telephone system.

Lexington Elem. Schools
Master Plan Study

Bridge Elementary School

Executive Summary - HVAC

The Bridge Elementary School has received below average maintenance of the HVAC systems over its occupied years. Even with adequate maintenance, through normal operation systems do gradually deteriorate due to scale, poor water conditions, and lack of preventive maintenance. Systems will gradually deteriorate to a point of exceeding their maximum serviceable life. This building is a typical example of one such project. While generally speaking, most systems are operating and maintaining reasonable space temperature control, but due to the extreme antiquated nature of the mechanical systems and their gradual scaling of the various piping systems, heat transfer rates have become reduced and the overall system is taxed to a point of inefficiency being created by the slowly depreciating system. While there are no catastrophic failures obvious with the present systems, the systems could continuously be repaired and modified on a sectional basis that will keep the systems operating maintaining acceptable space temperature control however, continued operation will be at the expense of increased operating costs due to inefficiency in heat transfer and through the generally antiquated nature of the systems themselves. The systems installed within this building are approaching their maximum serviceable life. With overall maintenance, cleaning and calibrating of the system, a continued limited service could be achieved however, unpredictable at best. At this time it is not necessary that the systems be modified to prevent a near catastrophic failure, but a continued reuse of the systems will continue to produce unsatisfactory results in terms of overall air quality, temperature control and operating costs.

Existing Conditions:

- The boiler room is provided with two (2) individual HB Smith 450 MILS cast iron sectional boilers generating low-pressure steam. Each boiler is provided with dual low water cut-offs as well as all operating and safety controls and a firematic switch. It was noted that there was surface contamination on the mud drums adjacent to the cast iron sectional nipples indicating that the nipples could be leaking. Each boiler is provided with a single no. 2 fuel oil burner and generates low-pressure steam for distribution. Considering the age of approximately forty-five (45) years, each boiler would suggest that it has approximately five (5) years of usable life.

- The breeching from each boiler appears to be welded black steel and is insulated with what appears to be calcium silicate insulation with a canvas jacket. Each boiler is provided with an individual induced draft fan located at the rear of each boiler which conveys combustion gases from each boiler to a masonry chimney. The induced draft fans are contaminated with soot and are reaching the end of their serviceable life.

- No. 2 fuel oil is recirculated from a buried 10,000 gallon double wall tank installed in 1993. It is provided with leak containment, leak monitoring, double wall piping and fluid level controls. Also provided is a central monitoring panel to detect the presence of fluid within the containment vessels which is not operating. Fuel oil is distributed throughout

the boiler room through a duplex gear driven fuel oil transfer set which includes pumps, strainers, and isolation valves. It appears that this pumping system is original to the building of approximately 1965 and the fuel oil pumps are showing signs of leakage and are slightly contaminated in the area of the pump bases and consideration should be given to a generalized upgrade. Also located within the pump area are two (2) steam shell and tube heat exchangers for the heating of the original no. 6 fuel oil. No. 6 fuel oil has been discontinued in use and no. 2 fuel oil has replaced it however, custodial personnel continue to use the heating system to preheat the no. 2 fuel oil. This does no harm in the overall operation however, is an energy waste.

- Condensate is returned to the boiler room from the building through a schedule 80 black steel condensate return system. Condensate is returned to the boiler room to a central condensate receiver system which is located on the floor of the boiler room. The floor mounted receiver is provided with two (2) individual boiler feed pumps which appear to be of primary and standby arrangement each of which pumps to a common distribution feed water piping to each boiler. Considering the overall age of the condensate system consideration should be given to an overall upgrade.

- Low-pressure steam and condensate is distributed through a series of tunnels which feed throughout the building. Steam piping appears to be schedule 40 black steel and condensate appears to be schedule 80 black steel both of which are insulated with what appears to be fiberglass insulation with an all service jacket. It was not possible to evaluate the piping located within these tunnels nor was it possible to determine the condition of the insulation however, considering its age of approximately forty-five (45) years and the noticeable steam leaks consideration should be given to a generalized upgrade of all piping.

- The automatic temperature control system is of the pneumatic type and is provided with a single storage tank with duplex compressors and motors. It does appear that these compressors are operating correctly but not maintaining adequate compressed air flow to the entire control system. The system was recently provided with a refrigerated air dryer which eliminates moisture within the pneumatic lines. Some corrosion was noted on the pneumatic lines resulting from moisture within the tubing. Consideration for upgrading should be considered.

- The kitchen is provided with a single wall stainless steel exhaust hood located over the cooking area. This exhaust hood is provided with an individual exhaust system through a welded steel exhaust ductwork system which connects to a roof mounted exhaust fan. The exhaust hood was noted to have vapor tight incandescent lights. The fire suppression system currently installed does not have a sprinkler head located in the hood.

- Make-up air for the kitchen and its associated hood is through an air-handling unit located at the ceiling. This air-handling unit is of the return air/outside air design and is provided with a steam heating coil with valve control, supply fan, and filters. Sidewall diffusers provide supply air to the entire kitchen area and generally are exhausted 100% through the associated exhaust hood.

- Heating of the entire kitchen area is through two (2) individual ceiling mounted classroom unit ventilators which are designed to introduce one hundred percent (100%) outside air for a source of make-up for the kitchen hood.

- The cafeteria is provided with a single air-handling unit which distributes to wall mounted supply registers located along one wall of the cafeteria. Galvanized sheet metal ductwork provides heated and ventilation air which is noted to be uninsulated. A source of outside air ventilation is provided for this air-handling unit to meet code requirements and the unit is provided with a low-pressure steam heating coil, supply fan, and filters. Return air is drawn through a return air opening at the base of the air-handling unit. Also located within the space are two (2) individual wall mounted exhaust registers that communicate to a roof mounted exhaust fan through a galvanized sheet metal exhaust system. The air-handling unit is controlled through a wall mounted pneumatic thermostat which is noted to be antiquated. Considering the overall age of all equipment and systems within the space consideration should be given to an overall upgrade.

- The building classrooms are provided with a wall mounted classroom unit ventilator. The unit ventilators are all of the low-pressure steam design and are provided with automatic control valves, outside air intake louver for the introduction of outside ventilation air, as well as filters, a supply fan, and automatic temperature controls. It was noted that each of the unit ventilators were extremely antiquated many of which were slightly damaged on the surface, loud and many of which were not operating. The classrooms were also provided with individual exhaust registers. These exhaust grills communicate through a galvanized sheet metal exhaust system to roof mounted exhaust fan and it does appear that this system does operate in a satisfactory manner however, consideration should be given to an upgrade.

- Each classroom space is also provided with a wall mounted pneumatic thermostat which controls the unit's ventilator control valve as well as the outside air dampers.

- The corridor areas throughout the building were provided with exhaust ventilation air however, supply air was not provided which is non-code compliant and should be upgraded.

- The corridor's were also provided with individual wall mounted convectors which were of the low pressure steam design and provide heating through the control of wall mounted pneumatic thermostats.

- The art/teachers work room area is provided with an individual air-handling unit located above the ceiling of the art room. This unit is provided with a source of outside ventilation air, low pressure steam heating coil, supply fan and filters. Considering the generalized age of all equipment consideration should be given to an upgrade.

- The media center is provided with an air-handling unit located above the ceiling. This area is provided with an individual air-handling unit located above the ceiling. This air-handling unit is provided with a source of outside ventilation air, low-pressure steam heating coil, supply fan and filters. Considering the generalized age of all equipment consideration should be given to an upgrade.

- The media center is also provided with an individual exhaust system which is made up of two (2) individual exhaust registers generally located in the wall. These exhaust registers communicate to a galvanized sheet metal exhaust system to a roof mounted exhaust fan. Generally considering the age of the equipment consideration should be given to a generalized upgrade.

- The administration area is provided with a single roof mounted air conditioning unit. This unit is of the single zone design and provides air-conditioned as well as ventilation air through one single zone throughout individual administration areas. Each occupied room is provided with a ceiling mounted supply diffuser which was noted to be slightly dirty. Considering its general age consideration should be given to an upgrade.

- Also located within the various offices of the administration area were varying lengths of fintube radiation located along the exterior wall. The fintube radiation was noted to be dirty and in many instances it was damaged with various end covers missing and slight surface contamination. The fintube radiation is controlled through an individual wall mounted pneumatic thermostats all of which were noted to be antiquated. Considering its general appearance and age consideration should be given to an upgrade.

- The interior classrooms were provided with ceiling suspended classroom unit ventilators which free blow into the occupied space through a single discharge grill horizontally located on the unit ventilator. Each unit ventilator is provided with an outside air intake duct which communicates to a roof mounted hood which was insulated with what appears to be fiberglass insulation. The unit ventilators were very typical to those of a typical classroom which include a steam heating coil, filters, and supply fan. The unit is provided with a wall mounted pneumatic thermostat for control and it also was antiquated.

- The individual classrooms were also provided with fintube radiation located under the clear story glass on the exterior wall. This fintube radiation was noted to be slightly dirty and slightly damaged.

- Also located within these classrooms was a wall mounted exhaust register. It was noted that these exhaust registers communicate to roof mounted exhaust fans through a galvanized sheet metal exhaust system. As we understand it, all systems do operate in a satisfactory manner however, considering the age of all equipment consideration should be given to an upgrade.

- The portable classrooms are each provided with a single roof mounted heating and ventilating and air conditioning unit. Each rooftop unit is provided with electric cooling and propane heating. The rooftop units are controlled through individual electric wall mounted thermostats. There is an offensive odor present in the portable classrooms which could relate to excessive vapor pressure resulting in mold formation. Further investigation should be considered to determine the contributing conditions.

- The building public toilets were provided with wall mounted exhaust registers that were noted to be slightly dirty however, as we understand it do operate. These exhaust registers communicate to roof mounted exhaust fans through a galvanized sheet metal exhaust system.

- Make-up air for the individual toilets was through the use of louvers located within the doors.

- Heating of the toilet spaces is through the use of wall mounted convection heating. It was noted that the heating elements were slightly damaged with surface contamination. The individual radiation elements were controlled by wall mounted pneumatic thermostats which were noted to be antiquated. Consideration should be given to an upgrade based purely on age and the antiquated nature of all equipment.

Proposed System Priorities

Priority 1 – Immediate Needs and Requirements

- Veeder Root oil tank monitoring system is not operating
  » ***$2,000.00***

- Wasted energy resulting from pre-heating No.2 fuel oil
  » ***$2,000.00***

- Steam leaks in steam tunnels
  » ***$25,000.00***

- Sprinkler head in kitchen hood is not installed
  » ***$250.00***

- Code required ventilation air not provided in corridors
  » ***$44,000.00***

- Calibration of the pneumatic temperature controls
  » ***$31,500.00***

- CO2 Demand ventilation control in Classroom unit ventilators
  » ***$27,000.00***

- Verify shaft trueness on all unit ventilators, exhaust fans and air handling units and replace if necessary
  » ***$13,000***

- Verify conditions of shaft bearings on all unit ventilators, exhaust fans and air handling units and replace if necessary
  » ***$13,000***

- Clean fan wheels, coils, dampers, and outside air louvers on all unit ventilators, exhaust fans and air handling units
  » ***$13,000***

Priority 2 – Five Year Needs

- In approximately five years the heating plant will be at the end of its serviceable life therefore, within that time frame we recommend the installation of (2) new gas fired steam boilers with modulating gas for energy savings.
  » ***$250,000***

- All air handling units and classroom unit ventilators would remain as is and be reused to accommodate desired room temperatures.

Priority 3 – Ten Year Needs

- The recently installed heating plant will be reused and converted from steam to hot water while reusing the modulating gas burners and adding boiler water reset for additional energy savings.
  » ***$3,500***

- All unit ventilators will be replaced with hot water unit ventilators reusing CO2 demand ventilation controls.
  » ***$202,500***

- All steam piping will be removed and a new schedule 40 black steel hot water system will be installed.
  » ***$252,000***

- Provide a direct digital control system with internet access and colored graphics.
  » ***$315,000***

- Replace all air handling units serving the Kitchen, Cafeteria, Art/Teachers Work Room, Media Center and Administration Area.
  » ***$135,000***

- Replace all exhaust fans and internally clean exhaust ductwork.
  » ***$68,000***

Priority 4 – Full Renovation of Systems

Regarding the HVAC systems, the projection will be limited to repairing the necessary systems incorporated in the ten year needs.

Lexington Elem. Schools
Master Plan Study

Bridge Elementary School

Executive Summary - Plumbing/Fire Protection

The Bridge Elementary School has received minimal maintenance on the plumbing systems and equipment over its occupied years. Even with adequate maintenance, systems will gradually deteriorate due to scale and poor water conditions. Although most of the systems are working adequately at this time, the major equipment and systems are near the end of their useful life. Along with aging systems, many of the systems are not up to current codes.

Fixtures:

- Fixtures are generally original indicating the time of their original installation.
- The water closets are generally wall hung vitreous china, flush valve type with siphon jet action. The flush valves do not appear meet water conservation requirements.
- The urinals are wall hung vitreous china, flush valve type with blow out action. The flush valves do not appear to meet water conservation requirements.
- The lavatories are wall hung vitreous china. The faucets are hot and cold water type and do not meet the water conservation requirements. The piping is standard p-trap and is not insulated to meet the accessibility codes.
- The classroom sinks are single bowl, stainless steel sinks with single lever faucets and drinking fountains as part of the sink. The sinks and faucets are in fair condition but do not appear to meet accessibility requirements.
- The drinking fountains are generally wall hung stainless with single lever controls. Fixtures appear to be in fair condition. The fixture and controls do not meet accessibility codes.

Water System:

- The domestic water service enters the building in the Boiler Room. The service entering the building is 4 in. and is complete with a water meter as well as a pressure reducing valve with by-pass. The pressure reducing valve pressure is set to reduce the incoming 100 psi down to the set pressure 60 psi. There is no backflow preventer on the municipal water supply.
- The domestic water heater is supplied from a storage tank with a steam shell and tube heat exchanger supplied from the heating boilers. This type of set up requires the heating boilers to run when there is a need for domestic hot water resulting in an excessive amount of wasted energy.

- There is a master thermostatic mixing valve on the domestic hot water system prior to being distributed to the building hot water system. The domestic hot water is distributed at 130 degrees F. There is no separate 140 degree F. hot water supplied to the Kitchen.

Drainage System:

- The sanitary and storm drainage systems are piped with cast iron. The exposed piping is visibly in good condition.
- The sanitary drainage system is piped to a municipal sewer system.
- The roof is generally flat and is drained by roof drains and a roof drainage system, which exits the building and connects to a municipal storm drainage system.

Natural Gas System:

- The building has no natural gas service at this time.

Kitchen:

- The kitchen equipment is all generally original and indicates the vintage of the time of installation.
- The cooking equipment is all electric and in fair condition.
- There is a grease trap in the kitchen that appears to be dedicated for the 3-pot sink. All other fixtures appear to go to the sanitary drainage system. There is no dedicated kitchen waste system or an exterior grease trap.

Fire Protection:

- There is no Fire Protection Sprinkler System installed in this school.

Proposed System Priorities

Priority 1 – Immediate Needs and Requirements:

- There are no immediate needs or requirements for this building. All equipment appears to be operating properly.

Priority 2 – 5 Year Requirements:

- A new gas fired water heater along with a thermostatic mixing valve that will supply 120 degree F. hot water to the building.
  - » ***$15,000.00***

- A new natural gas service will be installed to the building to provide fuel for heating and domestic hot water. Natural gas will also be provided to a generator if one is provided as part of the design.
  - » ***$5,000.00***

Priority 3 – 10 Year Requirements:

- The domestic water heater installed under Priority 2 will be utilized.
- The gas service installed under Priority 2 will be utilized.
- A new domestic 140 degree F. hot water and hot water recirculating piping system will be included to supply the kitchen needs.
  - » ***$5,000.00***
- All plumbing fixtures will be replaced with new water conserving type fixtures capable of saving approximately 30% of overall water usage of the building.
  - » ***$40,000.00***

Priority 4 – Full Renovation of Systems:

- All plumbing fixtures will be replaced with new water conserving type fixtures capable of saving approximately 30% of overall water usage of the building.
- The existing domestic water service appears to be sufficient for the existing building as well as any additions that may be incorporated into the design. A new gas fired water heater along with a thermostatic mixing valve that will supply 120 degree F. hot water to the building as well as 140 degree F hot water to the Kitchen.
- A new domestic cold, hot and hot water recirculating piping system will be included as part of the new domestic water systems.
- The existing drainage systems will be modified and reused as possible to accommodate the modifications to the existing building and any additions.
- A new natural gas service will be installed to the building to provide fuel for heating, domestic hot water and cooking. Natural gas will also be provided to a generator if one is provided as part of the design.
- Kitchen design will be based on the equipment provided by the kitchen equipment consultant including domestic hot and cold water, gas for cooking and drainage of all equipment. A dedicated kitchen waste system will be installed to convey all kitchen waste to an exterior grease trap prior to being discharged into the site sewer system.

- A new fire protection sprinkler system will be installed to provide 100% coverage of the entire existing building as well as all additions. This will include a new fire service to the building and distribution system with quick response sprinklers and fire department valves where required.

Lexington Elem. Schools
Master Plan Study

Estabrook Elementary School

Executive Summary - Electrical:

- The existing electrical systems in general, although functioning, are at the end or have exceeded their useful life. Even with regular maintenance systems do deteriorate over the years. The life safety systems, due to code changes over the years, are not in compliance with current codes.

Existing Conditions:

- The existing electrical service consists of an original switchboard with a fusible main device and fusible branches located in the basement main electric room. The service rating is 1,200 amp, 120/208 volt, 3∅, 4wire manufactured by General Electric. The condition of the equipment is poor.
  The main electric room does not have two entrances with panic hardware as currently required by code. The transformer feeding the building is located in a vault with exterior grate access. Primary service runs underground.
  Existing lighting and power panels are circuit breaker type and are rated at 120/208 volt, 3∅, 4wire. The existing panels generally do not have spare circuit breakers for the addition of new lighting and power circuits. The existing panels are in poor condition. A panel with a surge suppressor was recently added for classroom computer receptacles.

- Existing classroom lighting consists of 2' x 4' acrylic lensed fixtures with T8 lamps and electronic ballasts, parallel with the exterior wall. The existing lighting system contributes substantial glare onto computer screens present in classrooms. Controls are with 3 switches. There are no occupancy sensors.
  Lighting in the corridors is with 2’ x 2’ recessed acrylic fixtures with T8 lamps and electronic ballasts. Corridor light levels are moderate. Lights are locally controlled with switches.
  The stage has no theatrical lighting.
  Gymatorium lighting is with 1 x 4 lensed high bay with three (3) T5HO lamps and wireguards in good condition.

- Existing site roadway lighting is by concrete poles with cobra heads. Exterior building mounted metal halide flood lights also exist. Rear parking has wooden poles with cobra heads. Front canopy has recessed square fixtures with incandescent lamps.

- The emergency lighting system is through self contained emergency battery units. The system does not meet present code due to the lack of coverage. A minimum of one-foot candle is required at the floor. No emergency lights at exterior doors.

- Existing classrooms have approximately one receptacle per wall. A double duplex has been added for computer power. Computer lab is equipped with wiremold at each bench.

- The building is equipped throughout with an automatic fire alarm system in the corridors. While some existing strobes meet ADA for intensity others do not. Most strobes exceed ADA height and are not synchronized. The fire alarm control panel is conventional (non-addressable) and is manufactured by Gamewell Flex 300 and has 18 zones. Notification to the fire department is by a radio master box #5656. Pull stations exceed ADA height. Classrooms have smokes but no horn/strobe. Heats exist in boiler room.

- The telephone service is located outside of the main electric room. The Administration area has telephone handsets. Classrooms also have handsets. The paging/intercom system is a Bogen C-100 utilizing an old console for classroom speakers.
  There are classroom panels with integral clock/speaker. The stage does have a local sound system.
  There is a local area network present. Typically five data drops are present per classroom. The distribution frame is located in the computer lab.
  There is a master time clock. The clock appears to be in fair condition.
  There is a security system present with infrared detectors in the corridor and classrooms. Control panel was manufactured by Maxsys PC4020.
  No door entry system with door release.
  No card access or CCTV systems.
  No lightning protection system.

Proposed System Priorities

Priority 1: Immediate Needs

- Receptacles in kitchen not GFI.
  » ***$1,500.00***

- Provide lens in light fixture over servery counter.
  » ***$100.00***

- Electrical items under kitchen hood are required to shutdown upon activation of hood suppression system.
  » ***$2,500.00***

- Add fire alarm strobe to toilets.
  » ***$5,000.00***

- Add pull station at toilet exterior door.
  » ***$750.00***

Priority 2: 1 – 5 Year Expected Life:

- The existing fire alarm control panel, Gamewell Flex 300, 1980's vintage has reached the end of its life. Replacement parts are still available until they run out. New parts are no longer manufactured. Replacement smoke detectors are still available although UL Listed smoke detectors may not be. Existing panel is not expandable. In light of the building not being sprinklered it is recommended that a replacement panel be provided

with expansion capability for full coverage of smokes and heats. Strobes visible within the same space are required to be synchronized.
» ***$1.00/s.f. = $65,000.00***

- Provide additional self contained battery units in egress ways and other large spaces. Provide emergency lighting over exterior doors.
  » ***$.20/s.f. = $13,000.00***

- Provide full coverage of exit signs where required for safe egress out of the facility.
  » ***$.10/s.f. = $6,500.00***

Priority 3: 5 – 10 Year Expected Life:

- Provide occupancy sensors to turn lights off in classroom, toilets, offices, gym, etc. to save energy when spaces are unoccupied. Utility Co. rebates may be available for energy conservation measures.
  » ***55 @ $200/unit = $11,000.00***

Priority 4 – Full Renovation of Systems (Gut Rehab)
» ***$25.00/s.f. = $1,625,000.00***

- New construction service ratings are designed for a demand load of 10 watts/s.f. The service capacity will be sized for 1200 amperes at 277/480 volt, 3∅, 4wire. New lighting and power panels will be provided to accommodate respective loads and located in electric rooms. A system of computer grade panelboards with double neutrals and integral surge suppressors fed from k-rated transformers will be utilized to mitigate the harmonic effects caused by computers and other electronics.

- Classroom lighting fixtures will consist of pendant mounted indirect fluorescent luminaries with T5HO lamps and electronic ballasts. The fixtures will be pre-wired for automatic dimming control where natural daylight is available and also for multi-level switching.

- Office lighting fixtures will consist of acrylic recessed direct fixtures with (2) T5 lamps and electronic ballasts. Two step ballasts will be provided for dual-level switching. Fully dimmable ballasts will be provided where natural daylight is available. Lighting levels will be approximately 30-50 foot candles in classrooms and offices.

- Gymatorium lighting will be comprised of direct fluorescent fixtures with T5H0 lamps and electronic ballasts. The fixtures will be provided with protective wire guards. The light level will be designed for approximately 30 foot candles. Occupancy sensors will be provided to turn lights off when unoccupied. Theatrical lights with a dimming system will be provided for performances.

- Corridor lighting will be comprised of recessed acrylic fixtures with (2) T5 lamps & 2 step dimming electronic ballasts for dual level switching. The corridor light level will be designed for approximately 20-foot candles.

- Cafeteria lighting will be pendant indirect fluorescent fixtures with Biax lamps & electronic ballasts. The light levels will be designed for approximately 30 foot candles with dual level switching.

- Kitchen and servery lighting will consist of recessed 2'x4' acrylic lensed troffers with aluminum frame doors with T5 lamps and electronic ballasts. Light levels will be approximately 50-75 foot candles.

- Each area will be locally switched and designed for multi-level controls. Each classroom, office space and toilet rooms will have an occupancy sensor to turn lights off when unoccupied. Daylight sensors will be installed in each classroom and perimeter spaces for automatic dimming of light fixtures.

- The entire school will be controlled with an automatic lighting control system using the lighting panelboards with programmable breakers for programming lights on & off.

- Exterior site lighting fixtures for area lighting will be pole mounted long life, energy efficient LED luminaries in the parking area and roadways. Building perimeter fixtures will be wall mounted compact fluorescent over exterior doors. The exterior lighting will be connected to the automatic lighting control system for photocell on and timed off operation.

- An exterior natural gas emergency generator with a sound attenuated aluminum enclosure will be provided. Light fixtures and LED exit signs will be installed to serve all egress areas such as corridors, intervening spaces, toilets, and exit discharge exterior doors. The administration area lighting will be connected to the emergency generator. The generator will be sized to include life safety systems, boilers and circulating pumps, communications systems, kitchen refrigeration, etc.

- Each classroom will have a minimum of (2) duplex receptacles per teaching wall and (2) double duplex receptacles on dedicated circuits at classroom computer workstations. The teacher's workstation will have a double duplex receptacle also on a dedicated circuit.

- Office areas will generally have (1) duplex outlet per wall. At each workstation a double duplex receptacle will be provided.

- Corridors will have a cleaning receptacle at approximately 30-40 foot intervals.

- Exterior weatherproof GFI receptacles will be installed at exterior doors.

- A fire alarm and detection system in compliance with ADA will be provided with battery back-up. The system will be of the addressable type where each device will be identified at the control panel and remote annunciator by device type and location to facilitate search for origin of alarms. Smoke detectors will be provided in open areas, corridors, and other egress ways. The sprinkler system will be supervised for water flow and tampering with valves. Speaker/strobes will be provided in egress ways, classrooms,

assembly spaces, open areas and other large spaces. Strobe only units will be provided in single toilets and conference rooms.

- Manual pull stations will be provided at exit discharge doors.

- The system will be remotely connected to automatically report alarms to fire department via the radio master box.

- A three phase centralized uninterruptible power supply (UPS) system will be provided with battery back up. The system will provide conditioned power to sensitive electronic loads, telecommunication systems, bridge over power interruptions of short duration and allow an orderly shutdown of servers, communication systems, etc. during a prolonged power outage. The UPS system will also be connected to the stand-by generator.

- A system of lightning protection will be provided. The system will be installed in compliance with the provisions of the latest "Code for Protection Against Lightning" for buildings as adopted by the National Fire Protection Association and the Underwriters' Laboratories, Inc. for a UL Master Label System.

- The lightning protection equipment will include air terminals, conductors, conduits, fasteners, connectors, ground rods, etc.

- A Closed Circuit TV system will consist of computer servers with image software, computer monitors and IP based closed circuit TV cameras. The head end server will be located in the head end MDF room and will be rack mounted. The system can be accessed from any PC within the facility or externally via an IP address. Each camera can be viewed independently. The network video recorders NVR's will record all cameras and store this information for 21days at 15 images per second (virtual real time).
  The location of the cameras is generally in corridors and exterior building perimeter. The exterior cameras are pan-tilt-zoom type.

  The system will fully integrate with the access control system to allow viewing of events from a single alarm viewer. Camera images and recorded video will be linked to the access system to allow retrieval of video that is associated with an event.

- An intrusion system will consists of security panel, keypads, motion detectors and door contacts. The system is addressable which means that each device will be identified when an alarm occurs. The system is designed so that each perimeter classroom with grade access will have dual tech sensors along the exterior wall and corridors, door contacts at each exterior door.
  The system can be partitioned into several zones. Therefore, it is possible to use the Gym area while the remainder of the school remains alarmed.
  The system will include a digital transmitter to summons the local police department in the event of an alarm condition
  The intrusion system will be connected to the automated lighting control system to automatically turn on lighting upon an alarm.

- A card access system includes a card access controller, door controllers and proximity readers/keypads. Proximity readers will be located at various locations. Each proximity reader will have a distinctive code to identify the user and a log will be kept in memory. The log within the panel can be accessed through a computer.
  The alarm condition will also initiate real time recording on the integrated CCTV System. The system may be programmed with graphic maps allowing the end-user to quickly identify alarm conditions and lock/unlock doors.
  The system is modular and may be easily expanded to accommodate any additional devices.

- A renewable energy system will consist of a grid connected photovoltaic PV system intended to reduce the facilities demand for power. The photovoltaic system will operate in conformance with the green schools initiative. System will consist of roof mounted photovoltaic modules, weather station, data acquisition system and inverters. Interactive display terminals will be provided for students and for public awareness of the benefits of renewable energy.

- The data system infrastructure will consist of fiber optic backbone cabling. Horizontal wiring will consist of Category 6 UTP Plenum rated cabling for both data and telephone system for gigabit connectivity. The telephone infrastructure will accommodate Centrex, PBX or VOIP based phone systems.

- Each classroom will have 4 data outlets for student computers. Two data, one voice and CATV with video and audio connections to a ceiling projector will be provided at teacher's station with interconnectivity to a smartboard. A wall phone outlet with 2 way ceiling speaker will be provided for communications with administration. Clock will be wireless, part of a GPS/LAN based centralized clock system. Wireless access points with spare fibre will be provided on selected classrooms and other spaces.

- The cafeteria and gymnasium will each have a local sound system with assistive listening devices.

- A central paging system will be provided and integrated with the telephone system.

Lexington Elem. Schools
Master Plan Study

Estabrook Elementary School

Executive Summary - HVAC

The Estabrook Elementary School has received average maintenance of the HVAC systems over its occupied years. Even with adequate maintenance, through normal operation systems do gradually deteriorate due to scale, poor water conditions, and lack of preventive maintenance. Systems will gradually deteriorate to a point of exceeding their maximum serviceable life. While generally speaking, most systems are operating and maintaining reasonable space temperature control, but due to the extreme antiquated nature of the mechanical systems and their gradual scaling of the various piping systems, heat transfer rates have become reduced and the overall system is taxed to a point of inefficiency being created by the slowly depreciating system. While there are no catastrophic failures obvious with the present systems, the systems could continuously be repaired and modified on a sectional basis that will keep the systems operating maintaining acceptable space temperature control however, continued operation will be at the expense of increased operating costs due to inefficiency in heat transfer and through the generally antiquated nature of the systems themselves. The systems installed within this building are approaching their maximum serviceable life. With overall maintenance, cleaning and calibrating of the system, a continued limited service could be achieved. At this time it is not necessary that the systems be modified to prevent a near catastrophic failure, but a continued reuse of the systems will continue to produce unsatisfactory results in terms of overall air quality, temperature control and operating costs.

Existing Conditions:

- The boiler room is provided with two individual HB Smith 440 MILS water tube boilers generating low pressure steam. Each boiler is provided with dual low water cut-offs as well as all operating and safety controls and a firematic switch. Each boiler is provided with a single fuel no. 2 fuel oil burner and generates low-pressure steam for distribution. The boiler room is provided with an emergency shut-off switch at the boiler room entrance and does operate. Considering the age of the boilers it would appear from an external standpoint that they should be replaced.

- The breeching from each boiler appears to be welded black steel and is insulated with what appears to be calcium silicate insulation with a canvas jacket. Each boiler is provided with an individual induced draft fan and barometric damper located at the rear of each boiler which conveys combustion gases from each boiler to a masonry chimney. The induced draft fans are contaminated with soot and reaching the end of their serviceable life.

- No. 2 fuel oil is recirculated from a buried 10,000 gallon double wall underground storage tank. Fuel oil is distributed throughout the boiler room through a duplex gear driven fuel oil transfer set which includes pumps, strainers, and isolation valves. It appears that this pumping system is original and the fuel oil pumps are showing signs of leakage and are contaminated in the area of the pump bases and should be replaced.

- Condensate is returned to the boiler room through a schedule 80 black steel condensate return system. Condensate is returned to the boiler room to a return system which is located on the floor of the boiler room. The floor mounted receivers are provided with positive discharge pumps which act as boiler feed pumps to the boilers. The original condensate tank is no longer operational and three new tanks have been installed.

- Low-pressure steam and condensate is distributed through the crawl space which travels throughout the building. Steam piping appears to be schedule 40 black steel and condensate appears to be schedule 80 black steel both of which are insulated with what appears to be fiberglass insulation.

- Combustion air is provided through two individual ducts which originate at wall mounted louvers. One duct terminates at approximately twelve inches above the floor and a second duct terminates at approximately three feet above the floor. Per code one of the ducts must terminate at approximately eight to ten feet above the floor. The other duct at approximately twelve inches above the floor can remain. No motor operated damper was provided in one of the combustion air ducts. This condition is non-code compliant and should be upgraded.

- The automatic temperature control system is of the pneumatic type and is provided with a single storage tank with duplex compressors and motors. It does appear that these compressors are operating correctly but not maintaining adequate compressed air flow to the entire control system. The system is provided with a refrigerated air dryer as well as an oil and water separators. Consideration for upgrading should be considered.

- The kitchen is provided with a single wall stainless steel exhaust hood located over the cooking area. The exhaust hood was noted to have vapor tight incandescent lighting, fire protection, and washable replaceable filters.

- Make-up air for the kitchen and its associated hood is through an air-handling unit located at the ceiling of an adjacent storage room. This air-handling unit is provided with a steam heating coil with valve control, supply fan, and filters. Ventilation air is distributed through a galvanized sheet metal distribution system. Side wall diffusers provide supply air to the entire kitchen area and generally are exhausted 100% through the associated exhaust hood.

- The cafeteria area is a large area adjacent to the entrance lobby which has been assigned to use as an eating area. This space is not provided with any means of ventilation control nor is it provided with the air changes required for total air and outside air to meet the building code requirements. This entire condition is non-code compliant and should be upgraded.

- The cafeteria area is also provided with individual wall mounted convectors for space heating.

- The gymnasium is provided with two individual air handling units located high at the ceiling within an adjacent storage room. Galvanized sheet metal travels between each air handling unit to a single side wall diffuser located high within the space. The air handling units each are typical and are each provided with a source of outside air to a wall louver and the outside air duct is insulated. Each air handling unit is provided with a low pressure steam heating coil, supply fan, and filters. We were advised that the systems cannot be operated because of the noise generated makes them nearly impossible to use. Based on the above comments it is recommended that the systems be replaced entirely.

- Return air and exhaust air from the space are drawn through individual wall mounted registers which travel below the slab within the crawl space to remote exhaust fans and discharge the exhaust air out through louvers.

- Also located within the gymnasium was a length of fintube radiation located along the exterior wall. This fintube radiation is of the low pressure steam design and it was noted to be damaged and dirty and in need of upgrading.

- The air handling units and fintube radiation are controlled through individual wall mounted pneumatic thermostats.

- Each classroom is provided with a wall mounted classroom unit ventilator located on the exterior wall of each classroom. The unit ventilators are provided with a low pressure steam heating coil with a modulating automatic control valve. The unit ventilators are provided with an outside air intake louver as well as filters, supply fan. In each case the units were extremely antiquated many of which were slightly damaged on the surface and noisy. These spaces were also provided with individual exhaust registers. These exhaust grills communicate through a galvanized sheet metal exhaust system which are ventilated through a utility type exhaust fan which discharges to a wall mounted louver at the ceiling of the crawl space. All exhaust systems are extremely antiquated and considering their age should be replaced at this time.

- The computer classroom was provided with an air handling unit located overhead within the space itself. This air handling unit distributes heated and air conditioned air through an overhead galvanized sheet metal duct distribution system. It does appear that no ventilation is provided to this internal space and consideration should be given to upgrading this condition. Also located within this space was an exhaust register located approximately twelve inches above the floor. It appears that this exhaust register communicates through the central exhaust system located within the crawl space.

- The corridors located within the building were all provided with wall mounted convectors for generalized space heating. The individual convectors were controlled through individual pneumatic wall mounted thermostats.

- It was noted that there was a limited amount of exhaust ventilation located throughout the corridor areas however, no supply ventilation was provided. This condition is non-code compliant and should be upgraded.

- The music/lecture area is provided with heated and ventilation air which originates in an air handling unit located within the crawl space. This air handling unit is provided with a source of outside air for ventilation as well as a low pressure steam heating coil, supply fan, and filters. Also located within the space was various return air registers located above the floor. These registers return to the ceiling of the crawl space to provide return air back to the air handling unit. Also located at the ceiling of the space was an exhaust fan with limited amount of exhaust ductwork and registers. It was noted that all systems were slightly dirty and this exhaust system was extremely noisy.

- The media center is provided with three individual wall mounted classroom unit ventilators located along the exterior wall. Each unit ventilator is very similar in design and size to the individual classrooms and each are provided with a low pressure steam heating coil which is controlled through a modulating steam control valve, outside air louver for the introduction of ventilation air, supply fans, and filter. Each unit ventilator is controlled through a wall mounted pneumatic thermostat and it was noted to be antiquated and in need of replacement.

- Exhaust ventilation is through individual wall mounted exhaust registers located along the corridor wall of the space.

- The administration area is heated and ventilated through a centrally installed air handling unit located within the crawl space. This air handling unit is of the single zone design and distributes heating and ventilated air through a galvanized sheet metal supply system located at the ceiling of the crawl space. Supply air for the individual office areas is through a series of ceiling mounted diffusers located throughout each occupied area. This air handling unit is provided with a low pressure steam heating coil, filters, supply fans, and a source of outside ventilation air. Considering the overall age and condition consideration should be given to an upgrade.

- Also located within each occupied area were varying lengths of fintube radiation and/or convectors. Each heating element is of the low pressure steam design and is controlled through individual wall mounted pneumatic thermostats.

- Within the office administration area was a window mounted air conditioning unit which discharges condenser air into the entrance vestibule. This overall condition should be upgraded.

- The portable classroom building is provided with three individual classrooms each controlled through an individual rooftop unit. Each roof top unit is provided with electric heat and electric cooling and distributes heated, ventilation, and air conditioned air through an overhead galvanized sheet metal duct distribution system. Considering the source of electric heat consideration should be given to upgrading. There is an offensive odor present in the portable classrooms which could relate to excessive vapor pressure resulting in mold formation. Further investigation should be considered to determine the contributing conditions.

- Also located within the portable classrooms were ceiling mounted exhaust registers and a fan which is controlled through a wall mounted switch. It does appear that minimum ventilation is not being provided through this air handling unit and consideration should be given to upgrading the control system.

- The building gang toilets were provided with wall mounted exhaust registers which were extremely antiquated and dirty. These exhaust registers communicate to centrally located exhaust fans within the crawl space and through a galvanized sheet metal exhaust system discharge to wall mounted louvers.

- Make-up air for the individual toilets was through the use of louvers located within the doors.

- Heating of the toilet spaces were through the use of wall mounted fintube radiation which was controlled through the use of a pneumatic thermostat. It was noted that this radiation was slightly damaged with surface contamination and the pipe feeding the fintube radiation was damaged and the insulation was severely compromised.

Proposed System Priorities

Priority 1 – Immediate Needs and Requirements

- No actuator on one of the combustion air ducts in the boiler room. Duct termination heights are not code compliant.
  » ***$3,000.00***

- Code required ventilation air not provided in corridors/café
  » ***$32,000.00***

- Calibration of the pneumatic temperature controls
  » ***$32,500.00***

- CO2 Demand ventilation control in the classroom and media center unit ventilators
  » ***$21,000.00***

- Verify shaft trueness on all unit ventilators, exhaust fans and air handling units and replace if necessary.
  » ***$13,000.00***

- Verify conditions of shaft bearings on all unit ventilators, exhaust fans and air handling units and replace if necessary.
  » ***$13,000.00***

- Clean fan wheels, coils, dampers, and outside air louvers on all unit ventilators, exhaust fans and air handling units.
  » ***$13,000.00***

Priority 2 – Five Year Needs

- In approximately five years the heating plant will be at the end of its serviceable life therefore, within that time frame we recommend the installation of (2) new gas fired steam boilers with modulating gas for energy savings.
  » ***$250,000.00***

- All air handling units and classroom unit ventilators would remain as is and be reused to accommodate desired room temperatures.

Priority 3 – Ten Year Needs

- The recently installed heating plant will be reused and converted from steam to hot water while reusing the modulating gas burners and adding boiler water reset for additional energy savings.
  » ***$3,500.00***

- All unit ventilators will be replaced with hot water unit ventilators reusing CO2 demand ventilation controls.
  » ***$157,500.00***

- All steam piping will be removed and a new schedule 40 black steel hot water system will be installed.
  » ***$260,000.00***

- Provide a direct digital control system with internet access and colored graphics.
  » ***$325,000.00***

- Replace all air handling units serving the gym, computer classroom, administration area, music/lecture area and kitchen.
  » ***$98,000.00***

- Replace all exhaust fans and internally clean exhaust ductwork.
  » ***$67,500.00***

Priority 4 – Full Renovation of Systems

Regarding the HVAC systems, the projection will be limited to repairing the necessary systems incorporated in the 10 year needs.

Lexington Elem. Schools
Master Plan Study

Estabrook Elementary School

Executive Summary - Plumbing/Fire Protection

The Estabrook Elementary School has received minimal maintenance on the plumbing systems and equipment over its occupied years. Even with adequate maintenance, systems will gradually deteriorate due to scale and poor water conditions. Although most of the systems are working adequately at this time, the major equipment and systems are near the end of their useful life. Along with aging systems, many of the systems are not up to current codes.

Fixtures:

- Fixtures are generally original indicating the time of their original installation. Some attempts have been made to try and provide accessible toilet rooms.

- The water closets are generally wall hung vitreous china, flush valve type with siphon jet action. The flush valves do not appear meet water conservation requirements.

- The urinals are wall hung vitreous china, flush valve type with blow out action. The flush valves do not appear to meet water conservation requirements.

- The lavatories are wall hung vitreous china. The faucets are hot and cold water type and do not meet the water conservation requirements. The piping is standard p-trap and is not insulated to meet the accessibility codes.

- The classroom sinks are single bowl, stainless steel sinks with single lever faucets and drinking fountains as part of the sink. The sinks and faucets are in fair condition but do not appear to meet accessibility requirements.

- The drinking fountains are generally wall hung stainless with single lever controls. Fixtures appear to be in fair condition. The fixture and controls do not meet accessibility codes.

Water System:

- The domestic water service enters the building in the Boiler Room. The service entering the building is 3 in. and is complete with a water meter as well as a pressure reducing valve with by-pass. The pressure reducing valve pressure is set to reduce the incoming 100 psi down to the set pressure 60 psi. There is no backflow preventer on the municipal water supply.

- The domestic hot water is supplied from a tank type oil fired water heater. The water heater was installed in 2004 and is in good condition.

- There is a master thermostatic mixing valve on the domestic hot water system prior to being distributed to the building hot water system. There is no separate 140 degree F. hot water supplied to the Kitchen.

Drainage System:

- The sanitary and storm drainage systems are piped with cast iron. The exposed piping is visibly in good condition.

- The sanitary drainage system is piped to a municipal sewer system.

- The roof is generally flat and is drained by roof drains and a roof drainage system, which exits the building and connects to a municipal storm drainage system.

- There is a simplex sump pump located in the Boiler Room which appears to lift ground water as well as overflow from the condensate receivers.

Natural Gas System:

- There is no natural gas service supplied to the building.

Kitchen:

- The kitchen equipment is all generally original and indicates the vintage of the time of installation.

- The cooking equipment is all electric and in fair condition.

- There is a grease trap in the kitchen that appears to be dedicated for the 3-pot sink. All other fixtures appear to go to the sanitary drainage system. There is no dedicated kitchen waste system or an exterior grease trap.

Fire Protection:

- There is no Fire Protection Sprinkler System installed in this school.

Proposed System Priorities

Priority 1 – Immediate Needs and Requirements:

- There are no immediate needs or requirements for this building. All equipment appears to be operating properly.

Priority 2 – 5 Year Requirements:

- A new gas fired water heater along with a thermostatic mixing valve that will supply 120 degree F. hot water to the building.
  - » ***$15,000.00***

- A new natural gas service will be installed to the building to provide fuel for heating and domestic hot water. Natural gas will also be provided to a generator if one is provided as part of the design.
  - » ***$5,000.00***

Priority 3 – 10 Year Requirements:

- The domestic water heater installed under Priority 2 will be utilized.

- The gas service installed under Priority 2 will be utilized.

- A new domestic 140 degree F. hot water and hot water recirculating piping system will be included to supply the kitchen needs.
  - » ***$5,000.00***

- All plumbing fixtures will be replaced with new water conserving type fixtures capable of saving approximately 30% of overall water usage of the building.
  - » ***$40,000.00***

Priority 4 – Full Renovation of Systems:

- All plumbing fixtures will be replaced with new water conserving type fixtures capable of saving approximately 30% of overall water usage of the building.

- A new domestic water service will be provided, sized based on the building demand. A new gas fired water heater along with a thermostatic mixing valve that will supply 120 degree F. hot water to the building as well as 140 degree F hot water to the Kitchen.

- A new domestic cold, hot and hot water recirculating piping system will be included as part of the new domestic water systems.

- The existing drainage systems will be modified and reused as possible to accommodate the modifications to the existing building and any additions.

- A new natural gas service will be installed to the building to provide fuel for heating, domestic hot water and cooking. Natural gas will also be provided to a generator if one is provided as part of the design.

- Kitchen design will be based on the equipment provided by the kitchen equipment consultant including domestic hot and cold water, gas for cooking and drainage of all equipment. A dedicated kitchen waste system will be installed to convey all kitchen waste to an exterior grease trap prior to being discharged into the site sewer system.

- A new fire protection sprinkler system will be installed to provide 100% coverage of the entire existing building as well as all additions. This will include a new fire service to the building and distribution system with quick response sprinklers and fire department valves where required.

Lexington Elem. Schools
Master Plan Study

Hastings Elementary School

Executive Summary – Electrical

- The existing electrical systems in general, although functioning, are at the end or have exceeded their useful life. Even with regular maintenance systems do deteriorate over the years. The life safety systems, due to code changes over the years, are not in compliance with current codes.

- The facility has two (2) electrical services, one for the main building and a second service for the portables.

- The primary service runs underground into a transformer vault with exterior grate access. The vault transformer is a 225kva. The access into the vault below grade has experienced water seepage. The switchboard rated at 800 amperes, 120/208V, 3Ø, 4W has a fusible main with fusible branch devices. The switchboard was manufactured by Frank Adam and appears to be of the original vintage. The installation does not meet current code which required two entrances into the electric room with panic door hardware. Remote panels in general have no spare capacity for additional devices. Equipment condition is poor.

- Classroom lighting consists of two (2) rows, except Kindergarten end classrooms which have three (3) rows of suspended direct/indirect fixtures with parabolic baffles with two (2) T8 lamps and magnetic ballasts. Fixtures are suspended with 12" threaded rods on lower level. Corridor lights are 2 x 4 recessed acrylic troffers with two (2) T8 lamps and electronic ballasts. Corridors are locally switched. Cafeteria and kitchen have 1 x 4 surface wraparounds with two (2) T8 lamps and electronic ballasts. Kitchen hood has vaportight globes some without lens.

- Gymatorium has 1 x 4 fluorescent high bays with four (4) T5HO lamps with lens & wireguard. Stage has no theatrical lighting. There are no occupancy sensors in the facility.

- Exterior lighting consists of building mounted metal halide floods. There is no pole mounted parking lot fixtures.

- Emergency lighting system consists of an exterior generator diesel fired with an integral base mounted tank. The manufacturer is Onan/Cummings. The unit was locked but appears to be in good condition, installed approximately 15 years ago. One 225A, 3 pole automatic transfer switch exists in a separate emergency room. Switch and panel does not meet code for required working clearance. Current code requires electrical separation of emergency and non-emergency loads requiring two (2) transfer switches. Lower level corridor has battery units, lights are not on generator. Inadequate coverage of exit signs.

- Classrooms typically have four to six receptacles. Wiremold exists in classrooms.

- The fire alarm system consists of an Edwards EST Model LSS1 conventional (non-addressable) with 8 zones. System is approximately 15 years old. Transmission to fire department is via a radio master box #4221. Existing pedestal master box has been abandoned in place. Most horn/strobes are ADA type except height exceeds ADA guidelines. Some strobes are wall mounted tight to ceiling where minimum 6" below ceiling is required. Corridors and classrooms have smokes. No horn/strobes in classrooms. Toilets have strobes. Strobes are not synchronized.

- Building has a master clock system. Classrooms have a wall clock/speaker with a wall phone. The administration area has a phone for paging/intercom. The intercom was manufactured by Dukane Macs.

- Classrooms have a Category 5 computer network. Classrooms have 3 data drops and 1 CATV drop. Fiber optic service exists in server room.

- Security system is a Magnum Alert 1000 Series control panel connected to a remote central station. Exterior doors not alarmed except kitchen. Corridors and cafeteria have infrared sensors. Remote keypad exists at loading dock entrance.

- Stage has a local sound system.

- No door entry system with door release.

- No card access or closed circuit TV systems.

- No lightning protection system.

- Portable building ± 12 years old is in good condition. Portables have a second 200 ampere, 120/208V, 3Ø, 4W electrical service. Building is interconnected with main building for fire alarm system. Smokes and horn/strobes exist in corridors and classrooms. Self contained emergency battery units and exit signs exist.

Proposed System Priorities:

Priority 1: Immediate Needs

- Receptacles in kitchen not GFI.
  » ***$1,500.00***

- Add pull station and exit sign at lower level stairwell exterior door.
  » ***$1,500.00***

- Add pull stations at lower level classroom exterior doors, 1960 addition.
  » ***$5,000.00***

- Add horn/strobe in library.
  » ***$1,000.00***

- Add globes to kitchen hood fixtures.
  » ***$500.00***

- Add exit signs at all exterior doors.
  » ***$5,000.00***

Priority 2: 1 – 5 Year Expected Life:

- The existing fire alarm control panel, Edwards EST LSS1, early 1990's vintage, has reached the end of its life. Although some replacement parts are still available, other parts are not. Replacement detectors compatible with this panel are still available. Should the panel fail and the replacement part not be available it would force the school to be under a fire watch. We recommend replacing the existing control panel with a current EST addressable panel on a one for one swap. This will allow existing wiring to remain and allow new addressable devices to be added. In light of the building not being sprinklered it is recommended that additional smoke and heat detectors be provided for full coverage of the facility. Strobes should be synchronized to meet ADA.
  » ***$1.00/s.f. = $67,540.00***

- The normal/emergency lighting system should be tested by simulating a power failure and confirming that adequate emergency lighting exists in egress ways and other large spaces where required. Additional emergency lighting should be added where required including on the exterior at exit discharge doors.
  » ***$.25/s.f. = $16,885.00***

- Provide full coverage of exit signs where required for safe egress out of the facility.
  » ***$.10/s.f. = $6,754.00***

Priority 3: 5 – 10 Year Expected Life:

- Provide occupancy sensors to turn lights off in classroom, toilets, offices, gym, etc. to save energy when spaces are unoccupied. Utility Co. rebates may be available for energy conservation measures.
  » ***60 @ $200/unit = $12,000.00***

Priority 4 – Full Renovation of Systems (Gut Rehab)
  » ***$25.00/s.f. = $1,688,500.00***

- New construction service ratings are designed for a demand load of 10 watts/s.f. The service capacity will be sized for 1200 amperes at 277/480 volt, 3∅, 4wire. New lighting and power panels will be provided to accommodate respective loads and located in electric rooms. A system of computer grade panelboards with double neutrals and

integral surge suppressors fed from k-rated transformers will be utilized to mitigate the harmonic effects caused by computers and other electronics.

- Classroom lighting fixtures will consist of pendant mounted indirect fluorescent luminaries with T5HO lamps and electronic ballasts. The fixtures will be pre-wired for automatic dimming control where natural daylight is available and also for multi-level switching.

- Office lighting fixtures will consist of acrylic recessed direct fixtures with (2) T5 lamps and electronic ballasts. Two step ballasts will be provided for dual-level switching. Fully dimmable ballasts will be provided where natural daylight is available. Lighting levels will be approximately 30-50 foot candles in classrooms and offices.

- Gymatorium lighting will be comprised of direct fluorescent fixtures with T5H0 lamps and electronic ballasts. The fixtures will be provided with protective wire guards. The light level will be designed for approximately 30 foot candles. Occupancy sensors will be provided to turn lights off when unoccupied. Theatrical lights with a dimming system will be provided for performances.

- Corridor lighting will be comprised of recessed acrylic fixtures with (2) T5 lamps & 2 step dimming electronic ballasts for dual level switching. The corridor light level will be designed for approximately 20-foot candles.

- Cafeteria lighting will be pendant indirect fluorescent fixtures with Biax lamps & electronic ballasts. The light levels will be designed for approximately 30 foot candles with dual level switching.

- Kitchen and servery lighting will consist of recessed 2'x4' acrylic lensed troffers with aluminum frame doors with T5 lamps and electronic ballasts. Light levels will be approximately 50-75 foot candles.

- Each area will be locally switched and designed for multi-level controls. Each classroom, office space and toilet rooms will have an occupancy sensor to turn lights off when unoccupied. Daylight sensors will be installed in each classroom and perimeter spaces for automatic dimming of light fixtures.

- The entire school will be controlled with an automatic lighting control system using the lighting panelboards with programmable breakers for programming lights on & off.

- Exterior site lighting fixtures for area lighting will be pole mounted long life, energy efficient LED luminaries in the parking area and roadways. Building perimeter fixtures will be wall mounted compact fluorescent over exterior doors. The exterior lighting will be connected to the automatic lighting control system for photocell on and timed off operation.

- An exterior natural gas emergency generator with a sound attenuated aluminum enclosure will be provided. Light fixtures and LED exit signs will be installed to serve all egress areas such as corridors, intervening spaces, toilets, stairwells and exit discharge exterior doors. The administration area lighting will be connected to the emergency generator. The generator will be sized to include life safety systems, boilers and circulating pumps, communications systems, kitchen refrigeration, elevator, etc.

- Each classroom will have a minimum of (2) duplex receptacles per teaching wall and (2) double duplex receptacles on dedicated circuits at classroom computer workstations. The teacher's workstation will have a double duplex receptacle also on a dedicated circuit.

- Office areas will generally have (1) duplex outlet per wall. At each workstation a double duplex receptacle will be provided.

- Corridors will have a cleaning receptacle at approximately 30-40 foot intervals.

- Exterior weatherproof GFI receptacles will be installed at exterior doors.

- A fire alarm and detection system in compliance with ADA will be provided with battery back-up. The system will be of the addressable type where each device will be identified at the control panel and remote annunciator by device type and location to facilitate search for origin of alarms. Smoke detectors will be provided in open areas, corridors, and other egress ways. The sprinkler system will be supervised for water flow and tampering with valves. Speaker/strobes will be provided in egress ways, classrooms, assembly spaces, open areas and other large spaces. Strobe only units will be provided in single toilets and conference rooms.

- Manual pull stations will be provided at exit discharge doors.

- The system will be remotely connected to automatically report alarms to fire department via the radio master box.

- A three phase centralized uninterruptible power supply (UPS) system will be provided with battery back up. The system will provide conditioned power to sensitive electronic loads, telecommunication systems, bridge over power interruptions of short duration and allow an orderly shutdown of servers, communication systems, etc. during a prolonged power outage. The UPS system will also be connected to the stand-by generator.

- A system of lightning protection will be provided. The system will be installed in compliance with the provisions of the latest "Code for Protection Against Lightning" for buildings as adopted by the National Fire Protection Association and the Underwriters' Laboratories, Inc. for a UL Master Label System.

- The lightning protection equipment will include air terminals, conductors, conduits, fasteners, connectors, ground rods, etc.

- A Closed Circuit TV system will consist of computer servers with image software, computer monitors and IP based closed circuit TV cameras. The head end server will be located in the head end MDF room and will be rack mounted. The system can be accessed from any PC within the facility or externally via an IP address. Each camera can be viewed independently. The network video recorders NVR's will record all cameras and store this information for 21days at 15 images per second (virtual real time).
  The location of the cameras is generally in corridors and exterior building perimeter. The exterior cameras are pan-tilt-zoom type.
  The system will fully integrate with the access control system to allow viewing of events from a single alarm viewer. Camera images and recorded video will be linked to the access system to allow retrieval of video that is associated with an event.

- An intrusion system will consists of security panel, keypads, motion detectors and door contacts. The system is addressable which means that each device will be identified when an alarm occurs. The system is designed so that each perimeter classroom with grade access will have dual tech sensors along the exterior wall and corridors, door contacts at each exterior door.
  The system can be partitioned into several zones. Therefore, it is possible to use the Gym area while the remainder of the school remains alarmed.
  The system will include a digital transmitter to summons the local police department in the event of an alarm condition
  The intrusion system will be connected to the automated lighting control system to automatically turn on lighting upon an alarm.

- A card access system includes a card access controller, door controllers and proximity readers/keypads. Proximity readers will be located at various locations. Each proximity reader will have a distinctive code to identify the user and a log will be kept in memory. The log within the panel can be accessed through a computer.
  The alarm condition will also initiate real time recording on the integrated CCTV System. The system may be programmed with graphic maps allowing the end-user to quickly identify alarm conditions and lock/unlock doors.
  The system is modular and may be easily expanded to accommodate any additional devices.

- A renewable energy system will consist of a grid connected photovoltaic PV system intended to reduce the facilities demand for power. The photovoltaic system will operate in conformance with the green schools initiative. System will consist of roof mounted photovoltaic modules, weather station, data acquisition system and inverters. Interactive display terminals will be provided for students and for public awareness of the benefits of renewable energy.

- The data system infrastructure will consist of fiber optic backbone cabling. Horizontal wiring will consist of Category 6 UTP Plenum rated cabling for both data and telephone system for gigabit connectivity. The telephone infrastructure will accommodate Centrex, PBX or VOIP based phone systems.

- Each classroom will have 4 data outlets for student computers. Two data, one voice and CATV with video and audio connections to a ceiling projector will be provided at teacher's station with interconnectivity to a smartboard. A wall phone outlet with 2 way ceiling speaker will be provided for communications with administration. Clock will be wireless, part of a GPS/LAN based centralized clock system. Wireless access points with spare fibre will be provided on selected classrooms and other spaces.

- The cafeteria and gymnasium will each have a local sound system with assistive listening devices.

- A central paging system will be provided and integrated with the telephone system.

Lexington Elem. Schools
Master Plan Study

Hastings Elementary School

Executive Summary - HVAC

The Hastings Elementary School has received below average maintenance of the HVAC systems over its occupied years. Even with adequate maintenance, through normal operation systems do gradually deteriorate due to scale, poor water conditions, and lack of preventive maintenance. Systems will gradually deteriorate to a point of exceeding their maximum serviceable life. This building is a typical example of one such project. While generally speaking, most systems are operating and maintaining reasonable space temperature control, but due to the extreme antiquated nature of the mechanical systems and their gradual scaling of the various piping systems, heat transfer rates have become reduced and the overall system is taxed to a point of inefficiency being created by the slowly depreciating system. While there are no catastrophic failures obvious with the present systems, the systems could continuously be repaired and modified on a sectional basis that will keep the systems operating maintaining acceptable space temperature control however, continued operation will be at the expense of increased operating costs due to inefficiency in heat transfer and through the generally antiquated nature of the systems themselves. The systems installed within this building are approaching their maximum serviceable life. With overall maintenance, cleaning and calibrating of the system, a continued limited service could be achieved however, unpredictable at best. At this time it is not necessary that the systems be modified to prevent a near catastrophic failure, but a continued reuse of the systems will continue to produce unsatisfactory results in terms of overall air quality, temperature control and operating costs.

Existing Conditions:

- The boiler room is provided with two individual Weil McLain cast iron sectional boilers generating low pressure steam. Each boiler is provided with dual low water cut-offs as well as all operating and safety controls and a firematic switch. Each boiler is provided with a single fuel no. 2 fuel oil burner and generates low-pressure steam for distribution. One of the boilers does not have a control panel located on the burner. Considering the age of the boilers it would appear from an external standpoint that they should be replaced since they are reaching the end of their serviceable life.

- The breeching from each boiler appears to be welded black steel and is insulated with what appears to be calcium silicate insulation with a canvas jacket. Each boiler is provided with an individual induced draft fan and barometric damper located at the rear of each boiler which conveys combustion gases from each boiler to a masonry chimney. The induced draft fans are contaminated with soot, corrosion and are reaching the end of their serviceable life.

- No. 2 fuel oil is recirculated from a buried 10,000 gallon double wall underground storage tank. The oil system has a Veeder Root oil monitoring system. Fuel oil is distributed throughout the boiler room through a trench which travels from the oil filters to the boiler burners. It appears that this system is original to the building and is showing signs of leakage and should be replaced.

- Condensate is returned to the boiler room through a schedule 80 black steel condensate return system. Condensate is returned to the boiler room to a return system which is located on the floor of the boiler room. The floor mounted receiver is provided with positive discharge pumps which act as boiler feed pumps to the boilers.

- Low-pressure steam and condensate is distributed through a trench system which travels throughout the building. Steam piping appears to be schedule 40 black steel and condensate appears to be schedule 80 black steel both of which are insulated with what appears to be fiberglass insulation.

- Combustion air is provided through an indoor air handler which has a steam heating coil, supply fan, filters and outside air ductwork associated with it, all of which have reached the end of their serviceable life.

- The automatic temperature control system is of the pneumatic type and is provided with a recently installed single storage tank with duplex compressors and motors. It does appear that these compressors are operating correctly but not maintaining adequate compressed air flow to the entire control system. The system is provided with a refrigerated air dryer as well as an oil and water separators and blow down.

- The kitchen is provided with a single wall stainless steel exhaust hood located over the cooking area. The exhaust hood was noted to have vapor tight incandescent lighting, fire protection, and washable replaceable filters.

- Make-up air for the kitchen and its associated hood is through an air-handling unit located at the ceiling of an adjacent storage room. This air-handling unit is provided with a steam heating coil with valve control, supply fan, and filters. Ventilation air is distributed through a galvanized sheet metal distribution system. Side wall diffusers provide supply air to the entire kitchen area and generally are exhausted 100% through the associated exhaust hood.

- The cafeteria area is provided with one individual air handling unit located high at the ceiling within the boiler room. Galvanized sheet metal ductwork travels through the wall and discharges to multiple side wall diffusers. The air handling unit is provided with a source of outside air to a wall louver and the outside air duct is insulated but the supply and return are not. Each air handling unit is provided with a low pressure steam heating coil, supply fan, and filters. Return ductwork is associated with a return grille located low on the wall. Considering the age of the system an upgrade should be considered.

- The cafeteria area is also provided with individual wall mounted convectors for space heating. Also located within the cafe was a length of fintube radiation located along the exterior wall. This fintube radiation as well as the convector is of the low pressure steam design and it was noted to be damaged and dirty and in need of upgrading.

- The gymatorium is provided with one individual air handling unit located high at the ceiling within the boiler room. Galvanized sheet metal ductwork travels through the wall and into the stage area where it discharges to a single side wall diffuser the length of the entire stage. The air handling unit is provided with a source of outside air to a wall louver and the outside air duct is insulated but the supply and return are not. Each air handling unit is provided with a low pressure steam heating coil, supply fan, and filters. Return ductwork is associated with a single return grille located under the stage. Considering the age of the system an upgrade should be considered.

- Also located within the gymnasium was a length of fintube radiation located along the exterior wall within casework. This fintube radiation is of the low pressure steam design and it was noted to be damaged and dirty and in need of upgrading.

- The air handling units and fintube radiation are controlled through individual wall mounted pneumatic thermostats.

- Each classroom is provided with a wall mounted classroom unit ventilator located on the exterior wall of each classroom as well as fintube incased within casework along the entire exterior wall. The unit ventilators and fintube are provided with a low pressure steam heating coil with a modulating automatic control valve controlled through a wall mounted pneumatic thermostat. The unit ventilators are provided with an outside air intake louver as well as filters and supply fan. In each case the units were extremely antiquated many of which were slightly damaged on the surface and noisy.

- These classrooms were also provided with individual exhaust registers integrated into the cabinetry. These exhaust grills communicate through a galvanized sheet metal exhaust system which are ventilated through a utility type exhaust fan located above the corridor ceiling. All exhaust systems are extremely antiquated and considering their age should be replaced at this time.

- Also located in the classrooms were window air condition units for summer use. These units were dirty and in need of replacement.

- An addition was done to the school were additional kindergarten classrooms were installed. This addition was originally fed by the steam heating plant through underground direct buried steam pipe. Over time there was a pipe burst therefore, a secondary boiler room was added to this addition near the stairwell.

- Located in the boiler room is a gas fired Weil McLain cast iron hot water atmospheric boiler with mechanical combustion air through the use of a combustion air fan. The hot water is sent to a main header were four different zone are fed. Each zone is provide with a circulator to distribute the hot water to wall mounted classroom unit ventilator located on the exterior wall of each classroom as well as fintube along the entire exterior wall. The unit ventilators and fintube are provided with hot water heating coil with a modulating control valve controlled through a wall mounted thermostat. The unit ventilators are provided with an outside air intake louver as well as filters and supply fan. In each case the units were extremely antiquated many of which were slightly damaged on the surface.

- The corridors located within the building were all provided with wall mounted convectors for generalized space heating. The individual convectors were controlled through individual pneumatic wall mounted thermostats.

- It was noted that there was exhaust ventilation located throughout the corridor areas however, no supply ventilation was provided. This condition is non-code compliant and should be upgraded.

- Located above the corridor ceilings is an attic space which is utilized for mechanical space to allow exhaust ductwork to travel to and from classrooms and corridors. There are two different systems associated with the corridors and classrooms. The classrooms are handled through the use of a centrifugal exhaust fan and the corridors utilize a typical roof mounted mushroom fan. Also located within this attic space is a row of bare fintube element utilized to heat the space and an exhaust system to keep the space from overheating however, the controllability of the exhaust fan has been through a reverse acting thermostat which is not operating at this time.

- The teachers work room is provided with two wall mounted classroom unit ventilator located on the exterior wall. The unit ventilators are provided with a low pressure steam heating coil with a modulating automatic control valve. The unit ventilators are provided with an outside air intake louver as well as filters, supply fan. In each case the units were extremely antiquated many of which were slightly damaged on the surface and noisy.

- This space was not provided with exhaust register which is non code compliant. The unit ventilators are controlled through a wall mounted pneumatic thermostat.

- The media center is provided with fintube radiation located at the exterior wall within casework. Each heating element is of the low pressure steam design and is controlled through individual wall mounted pneumatic thermostats. Code required ventilation air is through the use of operable windows. There is no sign of exhaust for this area which is not code compliant and should be upgraded. Considering the overall age and condition consideration should be given to an upgrade.

- Also located in the media center were window air condition units for summer use. These units were dirty and in need of replacement.

- The administration area is heated through varying lengths of fintube radiation located in all occupied areas. Each heating element is of the low pressure steam design and is controlled through individual wall mounted pneumatic thermostats. Code required ventilation air is through the use of operable windows. There is no exhaust for this area which is not code compliant and should be upgraded. Considering the overall age and condition consideration should be given to an upgrade.

- The portable classroom building is provided with individual classrooms each controlled through an individual rooftop unit. Each roof top unit is provided with electric heat and electric cooling and distributes heated, ventilation, and air conditioned air through an overhead galvanized sheet metal duct distribution system. Considering the source of electric heat consideration should be given to upgrading. There is an offensive odor present in the portable classrooms which could relate to excessive vapor pressure resulting in mold formation. Further investigation should be considered to determine the contributing conditions.

- Also located within the portable classrooms were ceiling mounted exhaust registers and a fan which is controlled through a wall mounted switch. It does appear that minimum ventilation is not being provided through this air handling unit and consideration should be given to upgrading the control system.

- The building gang toilets were provided with wall mounted exhaust registers which were extremely antiquated and dirty. These exhaust registers communicate to a centrally located exhaust fan.

- Make-up air for the individual toilets was through the use of louvers located within the doors.

- Heating of the toilet spaces were through the use of wall mounted fintube radiation which was controlled through the use of a pneumatic thermostat. It was noted that this radiation was slightly damaged with surface contamination.

Proposed System Priorities

Priority 1 – Immediate Needs and Requirements

- Boiler #2 burner control panel needs to be replaced.
  » ***$2,500.00***

- Teachers work room/General classroom has no exhaust system.
  » ***$3,500.00***

- Room #10's unit ventilator steam valve was not operating.
  » ***$600.00***

- The computer room has no exhaust or ventilation air also the wall mounted cooling unit is not operating correctly and has a tendency to allow the room to over heat.
  » ***$8,500.00***

- The library thermostat is located within the corridor next to the main entrance rather then within the space.
  » ***$1,000.00***

- Code required ventilation air not provided in corridors
  » ***$24,000.00***

- Calibration of the pneumatic temperature controls
  » ***$33,500.00***

- Installing CO2 demand ventilation control in classroom unit ventilators.
  » ***$24,000.00***

- Verify shaft trueness on all unit ventilators, exhaust fans and air handling units and replace if necessary.
  » ***$17,000.00***

- Verify conditions of shaft bearings on all unit ventilators, exhaust fans and air handling units and replace if necessary.
  » ***$17,000.00***

- Clean fan wheels, coils, dampers, and outside air louvers on all unit ventilators, exhaust fans and air handling units.
  » ***$17,000.00***

Priority 2 – Five Year Needs

- In approximately five years the heating plant will be at the end of its serviceable life therefore, within that time frame we recommend the installation of (2) new gas fired steam boilers with modulating gas for energy savings.
  » ***$250,000.00***

- All air handling units and classroom unit ventilators would remain as is and be reused to accommodate desired room temperatures.

Priority 3 – Ten Year Needs

- The recently installed heating plant will be reused and converted from steam to hot water while reusing the modulating gas burners and adding boiler water reset for additional energy savings.
  » ***$3,500.00***

- All unit ventilators will be replaced with hot water unit ventilators reusing CO2 demand ventilation controls.
  » ***$180,000.00***

- All steam piping will be removed and a new schedule 40 black steel hot water system will be installed.
  » ***$268,000.00***

- Provide a direct digital control system with internet access and colored graphics.
  » ***$335,000.00***

- Replace all air handling units serving the gym, computer classroom, administration area, music/lecture area and kitchen.
  » ***$100,000.00***

- Replace all exhaust fans and internally clean exhaust ductwork.
  » ***$70,000.00***

Priority 4 – Full Renovation of Systems

Regarding the HVAC systems, the projection will be limited to repairing the necessary systems incorporated in the ten year needs.

Lexington Elem. Schools
Master Plan Study

Hasting Elementary School

Executive Summary - Plumbing/Fire Protection

The Hasting Elementary School has received minimal maintenance on the plumbing systems and equipment over its occupied years. Even with adequate maintenance, systems will gradually deteriorate due to scale and poor water conditions. Although most of the systems are working adequately at this time, the major equipment and systems are near the end of their useful life. Along with aging systems, many of the systems are not up to current codes.

Fixtures:

- Fixtures are generally original indicating the time of their original installation. Some attempts have been made to try and provide accessible toilet rooms.

- The water closets are generally wall hung vitreous china, flush valve type with siphon jet action. The flush valves do not appear meet water conservation requirements.

- The urinals are wall hung vitreous china, flush valve type with blow out action. The flush valves do not appear to meet water conservation requirements.

- The lavatories are wall hung vitreous china. The faucets are hot and cold water type and do not meet the water conservation requirements. The piping is standard p-trap and is not insulated to meet the accessibility codes.

- The classroom sinks are single bowl, stainless steel sinks with single lever faucets and drinking fountains as part of the sink. The sinks and faucets are in fair condition but do not appear to meet accessibility requirements.

- The drinking fountains are generally wall hung stainless with single lever controls. Fixtures appear to be in fair condition. The fixture and controls do not meet accessibility codes.

Water System:

- The domestic water service enters the building in the Boiler Room. The service entering the building is 2½ in. and is complete with a water meter as well as a pressure reducing valve with by-pass. The pressure reducing valve pressure is set to reduce the incoming 100 psi down to the set pressure 60 psi. There is no backflow preventer on the municipal water supply. The water service may be undersized for the building water requirements.

- The domestic hot water is supplied from a tank type gas fired water heater. The water heater was installed in 1995 and is in good condition.

- There is no master thermostatic mixing valve on the domestic hot water system prior to being distributed to the building hot water system. There is no separate 140 degree F. hot water supplied to the Kitchen.

Drainage System:

- The sanitary and storm drainage systems are piped with cast iron. The exposed piping is visibly in good condition.

- The sanitary drainage system is piped to a municipal sewer system.

- The roof is generally flat and is drained by roof drains and a roof drainage system, which exits the building and connects to a municipal storm drainage system.

- There is a duplex sewage ejector in the building which lifts the sewage from the building up to the municipal sewer system located in School Street. There is a very strong sewer smell in the room that the ejector is located in.

Natural Gas System:

- A small natural gas service is supplied to the building. The service was installed to provide fuel for the domestic water heater.

Kitchen:

- The kitchen equipment is all generally original and indicates the vintage of the time of installation.

- The cooking equipment is all electric and in fair condition. The kitchen appears to be a warming kitchen with no cooking or grease producing equipment.

- There is a grease 3-pot sink in the kitchen. There is no grease trap associated with this fixture. All other fixtures appear to go to the sanitary drainage system. There is no dedicated kitchen waste system or an exterior grease trap.

Fire Protection:

- There is no Fire Protection Sprinkler System installed in this school.

Proposed System Priorities

Priority 1 – Immediate Needs and Requirements:

- Repair seals and venting of the sewage ejector to eliminate the sewer smell in the building.
  - » ***$2,500.00***

Priority 2 – 5 Year Requirements:

- A new gas fired water heater along with a thermostatic mixing valve that will supply 120 degree F. hot water to the building.
  - » ***$15,000.00***

- A new natural gas service will be installed to the building to provide fuel for heating and domestic hot water. Natural gas will also be provided to a generator if one is provided as part of the design.
  - » ***$5,000.00***

Priority 3 – 10 Year Requirements:

- The domestic water heater installed under Priority 2 will be utilized.

- The gas service installed under Priority 2 will be utilized.

- A new domestic 140 degree F. hot water and hot water recirculating piping system will be included to supply the kitchen needs.
  - » ***$5,000.00***

- All plumbing fixtures will be replaced with new water conserving type fixtures capable of saving approximately 30% of overall water usage of the building.
  - » ***$40,000.00***

Priority 4 – 25 Year Term:

- All plumbing fixtures will be replaced with new water conserving type fixtures capable of saving approximately 30% of overall water usage of the building.

- The existing domestic water service appears to be insufficient for the existing building as well as any additions that may be incorporated into the design. A new domestic water service will be provided, sized based on the building demand. A new gas fired water heater along with a thermostatic mixing valve that will supply 120 degree F. hot water to the building as well as 140 degree F hot water to the Kitchen.

- A new domestic cold, hot and hot water recirculating piping system will be included as part of the new domestic water systems.

- The existing drainage systems will be modified and reused as possible to accommodate the modifications to the existing building and any additions.

- A new natural gas service will be installed to the building to provide fuel for heating, domestic hot water and cooking. Natural gas will also be provided to a generator if one is provided as part of the design.

- Kitchen design will be based on the equipment provided by the kitchen equipment consultant including domestic hot and cold water, gas for cooking and drainage of all equipment. A dedicated kitchen waste system will be installed to convey all kitchen waste to an exterior grease trap prior to being discharged into the site sewer system.

- A new fire protection sprinkler system will be installed to provide 100% coverage of the entire existing building as well as all additions. This will include a new fire service to the building and distribution system with quick response sprinklers and fire department valves where required.

Elementary Schools - M/E/P/FP Report

BOWMAN ELEMENTARY SCHOOL RENOVATION
STUDY ESTIMATE - 11-22-08
LEXINGTON, MA

Project name Bowman E.S.

Lexington
MA

Architect **TDPC**

Estimator *Essential Estimating*

Location	Labor Amount	Material Amount	Equip Amount	Total Amount
1 LIFE SAFETY	**1,060**	**3,626**		**4,686**
2 BUILDING CODE	**20,346**	**12,576**	**45**	**32,967**
3 EXTERIOR	**160,456**	**268,572**	**5,204**	**434,232**
5 HC ACCESS	**215,110**	**278,220**	**6,338**	**499,667**
6 FINISHES GEN	**290,493**	**206,220**	**16,698**	**513,412**

Estimate Totals

Labor	687,465		7,273.709	hrs
Material	769,214			
Equipment	28,284		1,297.452	hrs
	1,484,963	**1,484,963**		
	Total	***1,484,963***		

Location	Bid Item	Description	Labor Amount	Material Amount	Equip Amount	Total Amount
1 LIFE SAFETY						
	1A		*247*	*16*		*262*
	1D		*814*	*3,610*		*4,424*
		1 LIFE SAFETY	**1,060**	**3,626**		**4,686**
2 BUILDING CODE						
	2G		*19,986*	*12,576*	*32*	*32,594*
	2H		*360*		*12*	*373*
		2 BUILDING CODE	**20,346**	**12,576**	**45**	**32,967**
3 EXTERIOR						
	3A		*131,430*	*250,330*	*279*	*382,039*
	3B		*8,049*	*14,782*	*279*	*23,109*
	3C		*874*	*3,461*		*4,334*
	3E		*20,104*		*4,646*	*24,750*
		3 EXTERIOR	**160,456**	**268,572**	**5,204**	**434,232**
5 HC ACCESS						
	5A		*13,491*	*6,139*	*639*	*20,269*
	5B		*20,327*	*35,903*	*256*	*56,486*
	5C		*1,866*	*5,297*	*24*	*7,187*
	5D		*168*		*1*	*169*
	5E		*843*			*843*
	5F		*696*	*888*	*27*	*1,611*
	5G		*1,927*	*6,010*	*7*	*7,944*
	5H		*124,119*	*76,692*	*3,234*	*204,044*
	5K		*17,681*	*10,604*	*1,746*	*30,030*
	5L		*3,566*	*15,347*	*271*	*19,184*
	5N		*2,003*	*1,532*	*72*	*3,608*
	5P		*543*	*2,407*		*2,949*
	5Q		*962*		*27*	*989*
	5T		*26,918*	*117,402*	*35*	*144,354*
		5 HC ACCESS	**215,110**	**278,220**	**6,338**	**499,667**
6 FINISHES GEN						
	6A		*1,761*	*1,225*	*22*	*3,008*
	6B		*28,228*	*663*	*5,465*	*34,356*
	6C		*2,028*	*1,830*		*3,858*
	6D		*34,479*	*584*	*7,347*	*42,409*
	6E		*2,152*	*1,126*	*5*	*3,283*
	6G		*153*	*14*		*167*
	6GG		*3,458*	*479*	*242*	*4,179*
	6KK		*21,201*	*8,804*		*30,006*
	6L		*776*	*180*	*73*	*1,029*
	6LL		*196,258*	*191,317*	*3,544*	*391,119*
		6 FINISHES GEN	**290,493**	**206,220**	**16,698**	**513,412**

Estimate Totals

Estimate Totals

Labor	687,465		7,273.709	hrs
Material	769,214			
Equipment	28,284		1,297.452	hrs
	1,484,963	**1,484,963**		
	Total	***1,484,963***		

Location	Bid Item	Group	Phase	Description	Takeoff Quantity	Labor Amount	Material Amount	Total Cost/Unit	Total Amount
1 LIFE SAFETY									
	1A								
		2050.00		*DEMOLITION*					
			2084.01	*Demo: Doors & Windows*					
				Remove Door	1.00 each	32	-	32.11 /each	32
				Demo: Doors & Windows		*32*		*/each*	*32*
				DEMOLITION		*32*		*/sqft*	*32*
		8000.00		*DOORS & WINDOWS*					
			8210.01	*Doors: Wood*					
				Rehang Door	1.00 each	130		130.26 /each	130
				Doors: Wood		*130*		*/each*	*130*
				DOORS & WINDOWS		*130*		*/sqft*	*130*
		9000.00		*FINISHES*					
			9920.01	*Painting: Interior*					
				Paint Wd Door & Metal Frame & Prep	1.00 each	84	16	99.98 /each	100
				Painting: Interior		*84*	*16*	*/sqft*	*100*
				FINISHES		*84*	*16*	*/sqft*	*100*
				1A		***247***	***16***		***262***
	1D								
		2050.00		*DEMOLITION*					
			2084.01	*Demo: Doors & Windows*					
				Remove Hardware	3.00 each	136	-	45.21 /each	136
				Demo: Doors & Windows		*136*		*/each*	*136*
				DEMOLITION		*136*		*/sqft*	*136*
		8000.00		*DOORS & WINDOWS*					
			8710.01	*Hardware: Finishing*					
				Finishing Hardware Ext Budget	3.00 each	678	3,610	1,429.33 /each	4,288
				Hardware: Finishing		*678*	*3,610*	*/set*	*4,288*
				DOORS & WINDOWS		*678*	*3,610*	*/sqft*	*4,288*
				1D		***814***	***3,610***		***4,424***
				1 LIFE SAFETY		**1,060**	**3,626**		**4,686**
2 BUILDING CODE									
	2G								
		2050.00		*DEMOLITION*					
			2071.01	*Demo: General*					
				General Disposal	4.90 cuyd	101	-	27.17 /cuyd	133
				Demo: General		*101*		*/cuyd*	*133*
			2084.50	*Demo: Misc Items*					
				Remove Stage Curtain	528.00 sqft	593	-	1.12 /sqft	593
				Demo: Misc Items		*593*		*/sqft*	*593*
				DEMOLITION		*694*		*/sqft*	*727*
		11000.00		*EQUIPMENT*					
			11060.01	*Equip: Stage*					
				Curtain Track Med Duty	44.00 lnft	3,627	2,412	137.25 /lnft	6,039
				Curtain Fireproof	528.00 sqft	15,665	10,164	48.92 /sqft	25,829
				Equip: Stage		*19,291*	*12,577*	*/each*	*31,868*
				EQUIPMENT		*19,291*	*12,577*	*/sqft*	*31,868*
				2G		***19,986***	***12,577***		***32,594***
	2H								
		2050.00		*DEMOLITION*					
			2071.01	*Demo: General*					
				General Disposal	1.90 cuyd	39	-	27.17 /cuyd	52
				Demo: General		*39*		*/cuyd*	*52*
			2084.01	*Demo: Doors & Windows*					
				Remove Door	10.00 each	321	-	32.11 /each	321
				Demo: Doors & Windows		*321*		*/each*	*321*
				DEMOLITION		*360*		*/sqft*	*373*
				2H		***360***			***373***
				2 BUILDING CODE		**20,346**	**12,577**		**32,967**
3 EXTERIOR									
	3A								
		2050.00		*DEMOLITION*					
			2071.01	*Demo: General*					
				General Disposal	42.40 cuyd	873	-	27.17 /cuyd	1,152
				Demo: General		*873*		*/cuyd*	*1,152*
			2084.01	*Demo: Doors & Windows*					
				Remove Metal Windows	4,580.00 sqft	14,339	-	3.13 /sqft	14,339
				Demo: Doors & Windows		*14,339*		*/each*	*14,339*
				DEMOLITION		*15,213*		*/sqft*	*15,491*
		4000.00		*MASONRY*					
			4156.00	*Access: Wall Flashing*					
				Flash Head Lead Ct. Cop 5 oz.	756.00 sqft	3,457	3,476	9.17 /sqft	6,933
				Flash Sill Lead Ct. Cop 5 oz.	756.00 sqft	3,152	3,265	8.49 /sqft	6,417
				Access: Wall Flashing		*6,609*	*6,741*	*/sqft*	*13,350*
				MASONRY		*6,609*	*6,741*	*/sqft*	*13,350*
		6000.00		*WOOD & PLASTICS*					
			6015.00	*Fasteners: Frame Anchors*					
				Fastners & Misc	1.00 lsum	-	25	25.41 /lsum	25
				Fasteners: Frame Anchors			*25*	*/each*	*25*
			6113.40	*Blocking: Rough Bucks*					

Location	Bid Item	Group	Phase	Description	Takeoff Quantity	Labor Amount	Material Amount	Total Cost/Unit	Total Amount
			6113.40	*Blocking: Rough Bucks*					
				Rough Bucks 2 x 6 PT Windows	2,240.00 lnft	8,515	2,530	4.93 /lnft	11,044
				Blocking: Rough Bucks		*8,515*	*2,530*	*/mbf*	*11,044*
				WOOD & PLASTICS		*8,515*	*2,555*	*/sqft*	*11,070*
		7000.00		*THERMAL & MOISTURE PROT*					
			7910.01	*Sealant - Jt Filler Gaskt*					
				Backer Rod ½"	2,240.00 lnft	6,790	205	3.12 /lnft	6,995
				Polyurethane Sealant 1/2"	4,480.00 lnft	42,679	2,228	10.02 /lnft	44,907
				Sealant - Jt Filler Gaskt		*49,469*	*2,433*	*/lnft*	*51,902*
				THERMAL & MOISTURE PROT		*49,469*	*2,433*	*/sqft*	*51,902*
		8000.00		*DOORS & WINDOWS*					
			8520.01	*Window: Aluminum*					
				Custom Proj 4" .125 w Ins Gl Kynar	4,580.00 sqft	51,625	238,600	63.37 /sqft	290,225
				Window: Aluminum		*51,625*	*238,600*	*/sqft*	*290,225*
				DOORS & WINDOWS		*51,625*	*238,600*	*/sqft*	*290,225*
				3A		***131,430***	***250,330***		***382,039***
	3B								
		2050.00		*DEMOLITION*					
			2071.01	*Demo: General*					
				General Disposal	42.40 cuyd	873	-	27.17 /cuyd	1,152
				Demo: General		*873*		*/cuyd*	*1,152*
			2084.01	*Demo: Doors & Windows*					
				Remove Window Treatment	4,580.00 sqft	2,206	-	0.48 /sqft	2,206
				Demo: Doors & Windows		*2,206*		*/each*	*2,206*
				DEMOLITION		*3,079*		*/sqft*	*3,358*
		12000.00		*FURNISHINGS*					
			12520.01	*Shades*					
				Vinyl Heavy Wt	4,580.00 sqft	4,969	14,782	4.31 /sqft	19,751
				Shades		*4,969*	*14,782*	*/sqft*	*19,751*
				FURNISHINGS		*4,969*	*14,782*	*/sqft*	*19,751*
				3B		***8,049***	***14,782***		***23,109***
	3C								
		8000.00		*DOORS & WINDOWS*					
			8565.00	*Windows: Screens*					
				Window Screens/Wicket (Aluminum)	464.00 sqft	874	3,461	9.34 /sqft	4,334
				Windows: Screens		*874*	*3,461*	*/each*	*4,334*
				DOORS & WINDOWS		*874*	*3,461*	*/sqft*	*4,334*
				3C		***874***	***3,461***		***4,334***
	3E								
		2050.00		*DEMOLITION*					
			2060.00	*Demo: Building*					
				Small Building Temp	21,924.00 cuft	5,132	-	0.36 /cuft	7,923
				Disposal Building	182.02 cuyd	1,591	-	11.88 /cuyd	2,162
				Demo: Building		*6,722*		*/cuft*	*10,085*
			2071.01	*Demo: General*					
				General Disposal	5.20 cuyd	107	-	27.17 /cuyd	141
				Demo: General		*107*		*/cuyd*	*141*
			2075.00	*Demo: Concrete*					
				Remove Conc Walls 8"	620.00 sqft	10,348	-	18.26 /sqft	11,321
				Remove Ramp	280.00 sqft	2,926	-	11.44 /sqft	3,202
				Demo: Concrete		*13,274*		*/cuyd*	*14,523*
				DEMOLITION		*20,103*		*/sqft*	*24,750*
				3E		***20,103***			***24,750***
				3 EXTERIOR		**160,456**	**268,572**		**434,232**
5 HC ACCESS									
	5A								
		2050.00		*DEMOLITION*					
			2071.01	*Demo: General*					
				General Disposal	8.30 cuyd	171	-	27.17 /cuyd	225
				Demo: General		*171*		*/cuyd*	*225*
			2076.00	*Demo: Masonry*					
				Sawcut 6" CMU	24.00 lnft	679	-	46.49 /lnft	1,116
				Tooth Jambs 1 Wythe	24.00 lnft	741	-	30.89 /lnft	741
				Remove CMU 6"	120.00 sqft	438	-	3.97 /sqft	476
				Demo: Masonry		*1,858*		*/cuft*	*2,333*
			2084.01	*Demo: Doors & Windows*					
				Remove Door	28.00 each	899	-	32.11 /each	899
				Remove Door & Frame Ext Double	1.00 each	150	-	170.04 /each	170
				Demo: Doors & Windows		*1,049*		*/each*	*1,069*
			2088.01	*Demo: Finishes, Floors*					
				Flash Patch @ Wall Removal	10.00 sqft	23	21	4.41 /sqft	44
				Flash Patch @ Wall Removal	4.00 sqft	9	8	4.41 /sqft	18
				Demo: Finishes, Floors		*32*	*30*	*/sqft*	*62*
			2088.21	*Demo: Finishes, Walls*					
				Remove Stud GWB Partition	40.00 sqft	150	-	3.75 /sqft	150
				Demo: Finishes, Walls		*150*		*/sqft*	*150*
				DEMOLITION		*3,260*	*30*	*/sqft*	*3,839*
		4000.00		*MASONRY*					
			4050.10	*Misc: Scaffold*					
				Interior Scaffold	96.00 sqft	107	40	1.77 /sqft	170
				Misc: Scaffold		*107*	*40*	*/sqft*	*170*
			4050.15	*Misc: Material Handling*					

Location	Bid Item	Group	Phase	Description	Takeoff Quantity	Labor Amount	Material Amount	Total Cost/Unit	Total Amount
			4050.15	*Misc: Material Handling*					
				Concrete Block	0.09 m	-	-	262.78 /m	24
				Misc: Material Handling				*/m*	*24*
			4105.00	*Mortar: All Types*					
				Mortar Type "N"	0.17 cuyd	21	37	338.00 /cuyd	57
				Mortar: All Types		*21*	*37*	*/cuyd*	*57*
			4110.01	*Mortar: Grout Fill Conc*					
				Grout Fill 3000 psi,1/2" Gravl	0.09 cuyd	25	17	495.44 /cuyd	45
				Grout Double Door Frame	1.00 each	85	29	120.26 /each	120
				Mortar: Grout Fill Conc		*111*	*46*	*/cuyd*	*165*
			4157.00	*Reinforce: Vertical Wall*					
				Re-Bar #5 & #6	20.86 lbs	42	22	3.09 /lbs	64
				Reinforce: Vertical Wall		*42*	*22*	*/lbs*	*64*
			4158.00	*Reinforce: Horizontl Wall*					
				Horiz Wall Reinf 6" Hot Dippd	0.08 mlf	36	14	615.60 /mlf	49
				Reinforce: Horizontl Wall		*36*	*14*	*/mlf*	*49*
			4221.20	*Conc. Block: 6"*					
				Blk 6" Standard Face Reg Wt	84.00 each	1,027	189	14.47 /each	1,216
				Conc. Block: 6"		*1,027*	*189*	*/each*	*1,216*
			4221.50	*Conc. Block: 6" Lintel*					
				Lintel 6" Stand Face Reg Wt	6.00 each	111	39	26.60 /each	160
				Conc. Block: 6" Lintel		*111*	*39*	*/each*	*160*
				MASONRY		*1,455*	*387*	*/sqft*	*1,905*
		5000.00		*METALS*					
			5510.35	*Misc: Bolt On Material*					
				Angle Bolted To Masonry	29.00 lb	102	87	6.74 /lb	195
				Misc: Bolt On Material		*102*	*87*	*/lbs*	*195*
				METALS		*102*	*87*	*/sqft*	*195*
		6000.00		*WOOD & PLASTICS*					
			6113.40	*Blocking: Rough Bucks*					
				Rough Bucks 2 x 6 PT Doors	20.00 lnft	50	23	3.63 /lnft	73
				Blocking: Rough Bucks		*50*	*23*	*/mbf*	*73*
				WOOD & PLASTICS		*50*	*23*	*/sqft*	*73*
		7000.00		*THERMAL & MOISTURE PROT*					
			7910.01	*Sealant - Jt Filler Gaskt*					
				Backer Rod ½"	20.00 lnft	61	2	3.12 /lnft	62
				Polyurethane Sealant 1/2"	40.00 lnft	381	20	10.02 /lnft	401
				Sealant - Jt Filler Gaskt		*442*	*22*	*/lnft*	*463*
				THERMAL & MOISTURE PROT		*442*	*22*	*/sqft*	*463*
		8000.00		*DOORS & WINDOWS*					
			8210.01	*Doors: Wood*					
				Rehang Door	28.00 each	3,647		130.26 /each	3,647
				Doors: Wood		*3,647*		*/each*	*3,647*
			8410.00	*Aluminum Doors & Frames*					
				Alum Frame 6' x 7' Bronze Fin	1.00 each	283	503	785.96 /each	786
				Alum Door Med 3'-0 x 7'-0 Full Gl	2.00 each	513	2,104	1,308.63 /each	2,617
				Aluminum Doors & Frames		*796*	*2,607*	*/each*	*3,403*
			8710.01	*Hardware: Finishing*					
				Finishing Hardware Ext Budget	2.00 each	452	2,407	1,429.34 /each	2,859
				Hardware: Finishing		*452*	*2,407*	*/set*	*2,859*
				DOORS & WINDOWS		*4,895*	*5,014*	*/sqft*	*9,909*
		9000.00		*FINISHES*					
			9210.01	*Lath/Plastr: Gyp Plaster*					
				Plaster Patch @ Wall Removal	24.00 sqft	400	43	18.82 /sqft	452
				Plaster Patch @ Wall Removal	20.00 sqft	333	36	18.83 /sqft	377
				Plaster Patch Ceiling @ Wall Removal	14.00 sqft	76	22	7.17 /sqft	100
				Lath/Plastr: Gyp Plaster		*809*	*100*	*/sqft*	*929*
			9920.01	*Painting: Interior*					
				Paint Wd Door & Metal Frame & Prep	28.00 each	2,358	441	99.97 /each	2,799
				Paint Int CMU Spray p+2ct	128.00 sqft	121	36	1.22 /sqft	156
				Painting: Interior		*2,479*	*477*	*/sqft*	*2,956*
				FINISHES		*3,287*	*577*	*/sqft*	*3,884*
				5A		***13,491***	***6,139***		***20,269***
	5B								
		2050.00		*DEMOLITION*					
			2071.01	*Demo: General*					
				General Disposal	38.90 cuyd	801	-	27.17 /cuyd	1,057
				Demo: General		*801*		*/cuyd*	*1,057*
			2080.01	*Demo: Millwork*					
				Remove Casework	146.00 lnft	762	-	5.22 /lnft	762
				Demo: Millwork		*762*		*/sqft*	*762*
			2088.60	*Demo: Plumbing*					
				Remove Sink	29.00 each	3,562	-	122.84 /each	3,562
				Demo: Plumbing		*3,562*		*/sqft*	*3,562*
				DEMOLITION		*5,125*		*/sqft*	*5,381*
		6000.00		*WOOD & PLASTICS*					
			6113.20	*Blocking: Misc.*					
				Blocking 2 x 6 R.L.	146.00 lnft	502	99	4.11 /lnft	601
				Blocking: Misc.		*502*	*99*	*/mbf*	*601*
				WOOD & PLASTICS		*502*	*99*	*/sqft*	*601*
		12000.00		*FURNISHINGS*					
			12350.00	*Casework*					
				School Casework Base & Top	146.00 lnft	14,700	35,804	345.92 /lnft	50,504
				Casework		*14,700*	*35,804*	*/lnft*	*50,504*

Location	Bid Item	Group	Phase	Description	Takeoff Quantity	Labor Amount	Material Amount	Total Cost/Unit	Total Amount
				FURNISHINGS		*14,700*	*35,804*	*/sqft*	*50,504*
				5B		***20,327***	***35,903***		***56,486***
	5C								
		2050.00		*DEMOLITION*					
			2071.01	*Demo: General*					
				General Disposal	3.60 cuyd	74	-	27.17 /cuyd	98
				Demo: General		*74*		*/cuyd*	*98*
			2080.01	*Demo: Millwork*					
				Remove Casework	16.00 lnft	83	-	5.22 /lnft	83
				Demo: Millwork		*83*		*/sqft*	*83*
				DEMOLITION		*158*		*/sqft*	*181*
		6000.00		*WOOD & PLASTICS*					
			6113.20	*Blocking: Misc.*					
				Blocking 2 x 6 R.L.	16.00 lnft	55	11	4.11 /lnft	66
				Blocking: Misc.		*55*	*11*	*/mbf*	*66*
				WOOD & PLASTICS		*55*	*11*	*/sqft*	*66*
		12000.00		*FURNISHINGS*					
			12620.00	*Furniture*					
				Library Charge Desk	16.00 lnft	1,654	5,286	433.71 /lnft	6,939
				Furniture		*1,654*	*5,286*	*/lnft*	*6,939*
				FURNISHINGS		*1,654*	*5,286*	*/sqft*	*6,939*
				5C		***1,866***	***5,297***		***7,187***
	5D								
		2050.00		*DEMOLITION*					
			2071.01	*Demo: General*					
				General Disposal	0.20 cuyd	4	-	27.20 /cuyd	5
				Demo: General		*4*		*/cuyd*	*5*
			2088.60	*Demo: Plumbing*					
				Remove Drinking Fountain	1.00 each	164	-	163.75 /each	164
				Demo: Plumbing		*164*		*/sqft*	*164*
				DEMOLITION		*168*		*/sqft*	*169*
				5D		***168***			***169***
	5E								
		2050.00		*DEMOLITION*					
			2084.50	*Demo: Misc Items*					
				Remove TV	14.00 each	843	-	60.21 /each	843
				Demo: Misc Items		*843*		*/sqft*	*843*
				DEMOLITION		*843*		*/sqft*	*843*
				5E		***843***			***843***
	5F								
		2050.00		*DEMOLITION*					
			2071.01	*Demo: General*					
				General Disposal	0.10 cuyd	2	-	27.20 /cuyd	3
				Demo: General		*2*		*/cuyd*	*3*
			2077.00	*Demo: Steel*					
				Remove Steel Rail	9.00 lnft	90	-	10.04 /lnft	90
				Demo: Steel		*90*		*/each*	*90*
				DEMOLITION		*92*		*/sqft*	*93*
		5000.00		*METALS*					
			5510.80	*Stairs: Stair Parts*					
				Stair Railing Steel 1-1/2" 6 pipe	9.00 lnft	534	877	159.66 /lnft	1,437
				Stairs: Stair Parts		*534*	*877*	*/flt*	*1,437*
				METALS		*534*	*877*	*/sqft*	*1,437*
		9000.00		*FINISHES*					
			9920.01	*Painting: Interior*					
				Paint Int Pipe Rails	54.00 lnft	69	12	1.50 /lnft	81
				Painting: Interior		*69*	*12*	*/sqft*	*81*
				FINISHES		*69*	*12*	*/sqft*	*81*
				5F		***696***	***888***		***1,611***
	5G								
		2050.00		*DEMOLITION*					
			2071.01	*Demo: General*					
				General Disposal	1.10 cuyd	23	-	27.16 /cuyd	30
				Demo: General		*23*		*/cuyd*	*30*
			2084.50	*Demo: Misc Items*					
				Remove Toilet Partitions	2.00 each	161	-	80.28 /each	161
				Remove Toilet Accessories	9.00 each	90	-	10.03 /each	90
				Demo: Misc Items		*251*		*/sqft*	*251*
				DEMOLITION		*274*		*/sqft*	*281*
		6000.00		*WOOD & PLASTICS*					
			6113.20	*Blocking: Misc.*					
				Block Toilet Partition	1.00 each	30	12	42.06 /each	42
				Block H.C. Toilet Partition	2.00 each	90	29	59.95 /each	120
				Block Misc Toilet Accessories	16.00 each	289	80	23.10 /each	370
				Blocking: Misc.		*410*	*122*	*/mbf*	*532*
				WOOD & PLASTICS		*410*	*122*	*/sqft*	*532*
		10000.00		*SPECIALTIES*					
			10160.02	*Toilet Partition Phenolic*					
				Toilet Partition HC Flr Mtd	2.00 each	424	3,342	1,882.83 /each	3,766
				Urinal Screens Wall Hung	1.00 each	148	465	613.39 /each	613
				Toilet Partition Phenolic		*572*	*3,807*	*/each*	*4,379*
			10800.01	*Toilet Accessories*					
				Grab Bar 1-1/4" S.S. 36"	4.00 each	145	156	75.11 /each	300

Location	Bid Item	Group	Phase	Description	Takeoff Quantity	Labor Amount	Material Amount	Total Cost/Unit	Total Amount
			10800.01	*Toilet Accessories*					
				Mirror 18" x 30" S.S.	2.00 each	94	160	127.26 /each	255
				Sanitary Napkin Dispenser Recessed	1.00 each	48	1,036	1,083.76 /each	1,084
				Clothes Hook Single	2.00 each	40	38	39.26 /each	79
				Soap Dispenser	2.00 each	145	414	279.45 /each	559
				Stainless Steel Shelf	3.00 lnft	49	114	54.51 /lnft	164
				Toilet Tissue Disp Dbl	2.00 each	60	55	57.62 /each	115
				Towel Dispenser Surface Mtd	2.00 each	90	108	99.02 /each	198
				Toilet Accessories		*672*	*2,081*	*/each*	*2,753*
				SPECIALTIES		*1,244*	*5,888*	*/sqft*	*7,132*
				5G		***1,927***	***6,010***		***7,944***
	5H								
		2050.00		*DEMOLITION*					
			2071.01	*Demo: General*					
				General Disposal	68.90 cuyd	1,419	-	27.17 /cuyd	1,872
				Demo: General		*1,419*		*/cuyd*	*1,872*
			2075.00	*Demo: Concrete*					
				Saw Concrete Slab to 6"	138.00 lnft	752	-	7.56 /lnft	1,043
				Chip out Slab	116.00 sqft	1,434	10	14.12 /sqft	1,637
				Demo: Concrete		*2,186*	*10*	*/cuyd*	*2,681*
			2076.00	*Demo: Masonry*					
				Remove CMU 6"	1,750.00 sqft	6,380	-	3.97 /sqft	6,941
				Demo: Masonry		*6,380*		*/cuft*	*6,941*
			2084.50	*Demo: Misc Items*					
				Remove Toilet Partitions	12.00 each	963	-	80.28 /each	963
				Remove Toilet Accessories	55.00 each	552	-	10.04 /each	552
				Demo: Misc Items		*1,515*		*/sqft*	*1,515*
			2088.01	*Demo: Finishes, Floors*					
				Remove Ceramic Tile Floor	1,096.00 sqft	2,024	-	1.85 /sqft	2,024
				Flash Patch @ Wall Removal	175.00 sqft	403	369	4.41 /sqft	772
				Demo: Finishes, Floors		*2,427*	*369*	*/sqft*	*2,796*
			2088.50	*Demo: Finishes, Ceilings*					
				Remove Plaster Ceiling Metal Lath	1,096.00 sqft	2,464	-	2.25 /sqft	2,464
				Demo: Finishes, Ceilings		*2,464*		*/sqft*	*2,464*
			2088.60	*Demo: Plumbing*					
				Remove Sink	13.00 each	1,597	-	122.84 /each	1,597
				Remove Water Closet	17.00 each	2,387	-	140.41 /each	2,387
				Remove Urinal	3.00 each	737	-	245.68 /each	737
				Demo: Plumbing		*4,721*		*/sqft*	*4,721*
				DEMOLITION		*21,112*	*379*	*/sqft*	*22,989*
		3000.00		*CONCRETE*					
			3310.01	*Conc: Slabs On Grade*					
				Patch Conc. Slab Trench etc.	138.00 sqft	748	1,631	17.24 /sqft	2,379
				Conc: Slabs On Grade		*748*	*1,631*	*/cuyd*	*2,379*
				CONCRETE		*748*	*1,631*	*/sqft*	*2,379*
		4000.00		*MASONRY*					
			4050.10	*Misc: Scaffold*					
				Interior Scaffold	1,830.00 sqft	2,035	767	1.77 /sqft	3,238
				Misc: Scaffold		*2,035*	*767*	*/sqft*	*3,238*
			4050.15	*Misc: Material Handling*					
				Concrete Block	3.00 m	-	-	262.92 /m	789
				Misc: Material Handling				*/m*	*789*
			4105.00	*Mortar: All Types*					
				Mortar Type "N"	3.48 cuyd	422	754	337.96 /cuyd	1,176
				Mortar: All Types		*422*	*754*	*/cuyd*	*1,176*
			4110.01	*Mortar: Grout Fill Conc*					
				Grout Fill 3000 psi,1/2" Gravl	1.53 cuyd	431	294	494.65 /cuyd	757
				Grout Single Door Frame	10.00 each	636	204	88.73 /each	887
				Mortar: Grout Fill Conc		*1,067*	*498*	*/cuyd*	*1,644*
			4157.00	*Reinforce: Vertical Wall*					
				Re-Bar #5 & #6	333.76 lbs	674	356	3.09 /lbs	1,030
				Reinforce: Vertical Wall		*674*	*356*	*/lbs*	*1,030*
			4158.00	*Reinforce: Horizontl Wall*					
				Horiz Wall Reinf 6" Hot Dippd	1.47 mlf	654	251	615.65 /mlf	905
				Reinforce: Horizontl Wall		*654*	*251*	*/mlf*	*905*
			4221.20	*Conc. Block: 6"*					
				Blk 6" Standard Face Reg Wt	1,922.00 each	23,502	4,318	14.47 /each	27,820
				Conc. Block: 6"		*23,502*	*4,318*	*/each*	*27,820*
			4221.50	*Conc. Block: 6" Lintel*					
				Lintel 6" Stand Face Reg Wt	138.00 each	2,564	906	26.60 /each	3,671
				Conc. Block: 6" Lintel		*2,564*	*906*	*/each*	*3,671*
				MASONRY		*30,919*	*7,850*	*/sqft*	*40,273*
		5000.00		*METALS*					
			5510.35	*Misc: Bolt On Material*					
				Angle Bolted To Masonry	658.00 lb	2,325	1,981	6.74 /lb	4,436
				Misc: Bolt On Material		*2,325*	*1,981*	*/lbs*	*4,436*
				METALS		*2,325*	*1,981*	*/sqft*	*4,436*
		6000.00		*WOOD & PLASTICS*					
			6113.20	*Blocking: Misc.*					
				Block Toilet Partition	11.00 each	331	131	42.05 /each	463
				Block H.C. Toilet Partition	4.00 each	181	59	59.95 /each	240
				Block Misc Toilet Accessories	112.00 each	2,025	562	23.10 /each	2,587
				Blocking: Misc.		*2,537*	*752*	*/mbf*	*3,290*
			6113.40	*Blocking: Rough Bucks*					
				Rough Bucks 2 x 6 Doors	170.00 lnft	426	115	3.18 /lnft	541

Location	Bid Item	Group	Phase	Description	Takeoff Quantity	Labor Amount	Material Amount	Total Cost/Unit	Total Amount
				Blocking: Rough Bucks		*426*	*115*	*/mbf*	*541*
				WOOD & PLASTICS		*2,963*	*868*	*/sqft*	*3,831*
		7000.00		*THERMAL & MOISTURE PROT*					
			7910.01	*Sealant - Jt Filler Gaskt*					
				Polysulfide Sealant 1/4" Interior	170.00 lnft	1,595	38	9.61 /lnft	1,633
				Sealant - Jt Filler Gaskt		*1,595*	*38*	*/lnft*	*1,633*
				THERMAL & MOISTURE PROT		*1,595*	*38*	*/sqft*	*1,633*
		8000.00		*DOORS & WINDOWS*					
			8110.01	*Doors: Steel with Frames*					
				H.M. Frame 18ga Interior Single	10.00 each	989	1,728	271.73 /each	2,717
				Doors: Steel with Frames		*989*	*1,728*	*/each*	*2,717*
			8210.01	*Doors: Wood*					
				Door M Core 3-0 x 7-0 Louver	10.00 each	1,380	4,981	636.05 /each	6,360
				Doors: Wood		*1,380*	*4,981*	*/each*	*6,360*
			8710.01	*Hardware: Finishing*					
				Finishing Hardware Int Budget w Closure	10.00 each	1,356	7,980	933.58 /each	9,336
				Hardware: Finishing		*1,356*	*7,980*	*/set*	*9,336*
				DOORS & WINDOWS		*3,725*	*14,689*	*/sqft*	*18,414*
		9000.00		*FINISHES*					
			9210.01	*Lath/Plastr: Gyp Plaster*					
				Plaster Patch @ Wall Removal	200.00 sqft	3,330	355	18.82 /sqft	3,764
				Plaster Patch Ceiling @ Wall Removal	175.00 sqft	952	279	7.17 /sqft	1,254
				Lath/Plastr: Gyp Plaster		*4,282*	*634*	*/sqft*	*5,018*
			9253.30	*GWB: Boards & Sheathing*					
				GWB 5/8" Water Resistant Clgs	1,096.00 sqft	1,016	475	1.36 /sqft	1,491
				GWB: Boards & Sheathing		*1,016*	*475*	*/sqft*	*1,491*
			9254.00	*GWB: Finish Mud/Tape*					
				Labor GWB Ceiling Finish	1,096.00 sqft	1,221	84	1.19 /sqft	1,304
				GWB: Finish Mud/Tape		*1,221*	*84*	*/sqft*	*1,304*
			9310.01	*Ceramic Tile*					
				Ceramic Tile Floor Grade 2	1,096.00 sqft	15,267	6,656	20.00 /sqft	21,923
				Ceramic Trim: Cove Base	462.00 lnft	11,837	2,013	29.98 /lnft	13,850
				Ceramic Tile		*27,104*	*8,669*	*/sqft*	*35,773*
			9510.10	*Ceiling: Susp. System*					
				Susp Clg 1-1/2" Channel	1,096.00 sqft	3,680	1,713	4.92 /sqft	5,393
				Ceiling: Susp. System		*3,680*	*1,713*	*/sqft*	*5,393*
			9920.01	*Painting: Interior*					
				Paint Wd Door & Metal Frame	10.00 each	702	143	84.46 /each	845
				Epoxy Paint GDW Clg	1,096.00 sqft	2,535	863	3.10 /sqft	3,399
				Paint Int CMU Spray p+2ct	2,630.00 sqft	2,479	735	1.22 /sqft	3,214
				Epoxy Paint Int CMU	2,630.00 sqft	6,084	2,206	3.15 /sqft	8,289
				Epoxy Paint Exist Int CMU	2,832.00 sqft	4,125	1,583	2.02 /sqft	5,708
				Painting: Interior		*15,924*	*5,530*	*/sqft*	*21,454*
				FINISHES		*53,226*	*17,105*	*/sqft*	*70,433*
		10000.00		*SPECIALTIES*					
			10160.02	*Toilet Partition Phenolic*					
				Toilet Partition Reg Flr Mtd	8.00 each	1,696	11,609	1,663.01 /each	13,304
				Toilet Partition HC Flr Mtd	4.00 each	848	6,684	1,882.83 /each	7,531
				Urinal Screens Wall Hung	3.00 each	445	1,395	613.39 /each	1,840
				Toilet Partition Phenolic		*2,988*	*19,687*	*/each*	*22,676*
			10800.01	*Toilet Accessories*					
				Grab Bar 1-1/4" S.S. 36"	20.00 each	723	779	75.11 /each	1,502
				Mirror 18" x 30" S.S.	14.00 each	658	1,123	127.26 /each	1,782
				Sanitary Napkin Dispenser Recessed	3.00 each	145	3,107	1,083.76 /each	3,251
				Clothes Hook Single	12.00 each	241	230	39.26 /each	471
				Soap Dispenser	14.00 each	1,013	2,900	279.45 /each	3,912
				Stainless Steel Shelf	21.00 lnft	346	799	54.51 /lnft	1,145
				Toilet Tissue Disp Dbl	18.00 each	542	495	57.62 /each	1,037
				Towel Dispenser Surface Mtd	6.00 each	271	323	99.02 /each	594
				Towel Disp/Waste Recpt	4.00 each	579	2,709	821.92 /each	3,288
				Toilet Accessories		*4,517*	*12,465*	*/each*	*16,982*
				SPECIALTIES		*7,505*	*32,152*	*/sqft*	*39,658*
				5H		***124,119***	***76,692***		***204,044***
	5K								
		2050.00		*DEMOLITION*					
			2071.01	*Demo: General*					
				General Disposal	2.20 cuyd	45	-	27.17 /cuyd	60
				Shore - Screw Jack	7.00 each	7,449	479	1,196.86 /each	8,378
				Demo: General		*7,494*	*479*	*/cuyd*	*8,438*
			2076.00	*Demo: Masonry*					
				Cut Out Opng 6" CMU	49.00 sqft	1,397	-	31.02 /sqft	1,520
				Sawcut 6" CMU	56.00 lnft	1,584	-	46.49 /lnft	2,603
				Tooth Jambs 1 Wythe	49.00 lnft	1,514	-	30.89 /lnft	1,514
				Demo: Masonry		*4,495*		*/cuft*	*5,637*
			2084.01	*Demo: Doors & Windows*					
				Remove Door & Frame Int Single	7.00 each	787	-	127.51 /each	893
				Demo: Doors & Windows		*787*		*/each*	*893*
				DEMOLITION		*12,776*	*479*	*/sqft*	*14,967*
		4000.00		*MASONRY*					
			4110.01	*Mortar: Grout Fill Conc*					
				Grout Single Door Frame	7.00 each	445	143	88.72 /each	621
				Mortar: Grout Fill Conc		*445*	*143*	*/cuyd*	*621*
				MASONRY		*445*	*143*	*/sqft*	*621*
		6000.00		*WOOD & PLASTICS*					
			6113.40	*Blocking: Rough Bucks*					

Location	Bid Item	Group	Phase	Description	Takeoff Quantity	Labor Amount	Material Amount	Total Cost/Unit	Total Amount
			6113.40	*Blocking: Rough Bucks*					
				Rough Bucks 2 x 6 Doors	119.00 lnft	298	81	3.18 /lnft	379
				Blocking: Rough Bucks		*298*	*81*	*/mbf*	*379*
				WOOD & PLASTICS		*298*	*81*	*/sqft*	*379*
		7000.00		*THERMAL & MOISTURE PROT*					
			7910.01	*Sealant - Jt Filler Gaskt*					
				Polysulfide Sealant 1/4" Interior	119.00 lnft	1,116	26	9.61 /lnft	1,143
				Sealant - Jt Filler Gaskt		*1,116*	*26*	*/lnft*	*1,143*
				THERMAL & MOISTURE PROT		*1,116*	*26*	*/sqft*	*1,143*
		8000.00		*DOORS & WINDOWS*					
			8110.01	*Doors: Steel with Frames*					
				H.M. Frame 18ga Interior Single	7.00 each	692	1,210	271.73 /each	1,902
				Doors: Steel with Frames		*692*	*1,210*	*/each*	*1,902*
			8210.01	*Doors: Wood*					
				Door M Core 3-0 x 7-0 Vision	7.00 each	912	2,980	555.93 /each	3,891
				Doors: Wood		*912*	*2,980*	*/each*	*3,891*
			8710.01	*Hardware: Finishing*					
				Finishing Hardware Int Budget w Closure	7.00 each	949	5,586	933.58 /each	6,535
				Hardware: Finishing		*949*	*5,586*	*/set*	*6,535*
				DOORS & WINDOWS		*2,554*	*9,775*	*/sqft*	*12,329*
		9000.00		*FINISHES*					
			9920.01	*Painting: Interior*					
				Paint Wd Door & Metal Frame	7.00 each	491	100	84.46 /each	591
				Painting: Interior		*491*	*100*	*/sqft*	*591*
				FINISHES		*491*	*100*	*/sqft*	*591*
				5K		***17,681***	***10,604***		***30,030***
	5L								
		2050.00		*DEMOLITION*					
			2071.01	*Demo: General*					
				General Disposal	0.40 cuyd	8	-	27.15 /cuyd	11
				Demo: General		*8*		*/cuyd*	*11*
			2075.00	*Demo: Concrete*					
				Saw Concrete Slab to 6"	25.00 lnft	136	-	7.56 /lnft	189
				Chip out Slab	35.00 sqft	433	3	14.12 /sqft	494
				Demo: Concrete		*569*	*3*	*/cuyd*	*683*
				DEMOLITION		*577*	*3*	*/sqft*	*694*
		14000.00		*CONVEYING SYSTEMS*					
			14405.00	*Lifts*					
				Lift Commercial	1.00 each	2,989	15,344	18,490.57 /each	18,491
				Lifts		*2,989*	*15,344*	*/each*	*18,491*
				CONVEYING SYSTEMS		*2,989*	*15,344*	*/sqft*	*18,491*
				5L		***3,566***	***15,347***		***19,184***
	5N								
		3000.00		*CONCRETE*					
			3131.00	*Forms: Ramps*					
				Ramp Forms 2 use	115.00 lnft	910	205	9.69 /lnft	1,114
				Forms: Ramps		*910*	*205*	*/lnft*	*1,114*
			3225.00	*Rebar: WWM @ Ramp/Misc*					
				Wiremesh - Ramp 6x6 6/6	4.08 sqs	282	208	120.01 /sqs	490
				Rebar: WWM @ Ramp/Misc		*282*	*208*	*/sqs*	*490*
			3309.50	*Conc: Ramps*					
				Ramp Conc 4000 psi	7.56 cuyd	348	1,072	197.31 /cuyd	1,492
				Conc: Ramps		*348*	*1,072*	*/cuyd*	*1,492*
			3375.00	*Finish: Protect & Cure*					
				Cure Conc w/burlap Ramp	4.08 sqs	105	48	37.43 /sqs	153
				Finish: Protect & Cure		*105*	*48*	*/sqs*	*153*
			3380.01	*Finish: General*					
				Broom/Float Finish Ramp	408.00 sqft	359	-	0.88 /sqft	359
				Finish: General		*359*		*/sqft*	*359*
				CONCRETE		*2,003*	*1,532*	*/sqft*	*3,608*
				5N		***2,003***	***1,532***		***3,608***
	5P								
		2050.00		*DEMOLITION*					
			2084.01	*Demo: Doors & Windows*					
				Remove Hardware	2.00 each	90	-	45.21 /each	90
				Demo: Doors & Windows		*90*		*/each*	*90*
				DEMOLITION		*90*		*/sqft*	*90*
		8000.00		*DOORS & WINDOWS*					
			8710.01	*Hardware: Finishing*					
				Finishing Hardware Ext Budget	2.00 each	452	2,407	1,429.34 /each	2,859
				Hardware: Finishing		*452*	*2,407*	*/set*	*2,859*
				DOORS & WINDOWS		*452*	*2,407*	*/sqft*	*2,859*
				5P		***543***	***2,407***		***2,949***
	5Q								
		2050.00		*DEMOLITION*					
			2075.00	*Demo: Concrete*					
				Remove Locker Base	8.00 lnft	136	-	20.38 /lnft	163
				Demo: Concrete		*136*		*/cuyd*	*163*
			2084.50	*Demo: Misc Items*					
				Relocate Lockers	8.00 each	826	-	103.24 /each	826
				Demo: Misc Items		*826*		*/sqft*	*826*
				DEMOLITION		*962*		*/sqft*	*989*

Location	Bid Item	Group	Phase	Description	Takeoff Quantity	Labor Amount	Material Amount	Total Cost/Unit	Total Amount
						962			***989***
	5T								
		2050.00		*DEMOLITION*					
			2071.01	*Demo: General*					
				General Disposal	5.30 cuyd	109	-	27.17 /cuyd	144
				Demo: General		*109*		*/cuyd*	*144*
			2084.01	*Demo: Doors & Windows*					
				Remove Hardware	144.00 each	6,510	-	45.21 /each	6,510
				Demo: Doors & Windows		*6,510*		*/each*	*6,510*
				DEMOLITION		*6,619*		*/sqft*	*6,654*
		8000.00		*DOORS & WINDOWS*					
			8710.01	*Hardware: Finishing*					
				Finishing Hardware Ext Budget	16.00 each	3,617	19,253	1,429.33 /each	22,869
				Finishing Hardware Int Budget w Closure	123.00 each	16,682	98,149	933.58 /each	114,831
				Hardware: Finishing		*20,298*	*117,402*	*/set*	*137,700*
				DOORS & WINDOWS		*20,298*	*117,402*	*/sqft*	*137,700*
				5T		***26,918***	***117,402***		***144,354***
				5 HC ACCESS		**215,110**	**278,220**		**499,667**
6 FINISHES GEN									
	6A								
		2050.00		*DEMOLITION*					
			2071.01	*Demo: General*					
				General Disposal	3.30 cuyd	68	-	27.17 /cuyd	90
				Demo: General		*68*		*/cuyd*	*90*
			2088.50	*Demo: Finishes, Ceilings*					
				Remove Acoust Tile	360.00 sqft	520	-	1.45 /sqft	520
				Demo: Finishes, Ceilings		*520*		*/sqft*	*520*
				DEMOLITION		*588*		*/sqft*	*610*
		9000.00		*FINISHES*					
			9510.50	*Ceiling: 2x4 Tile*					
				MinFbr Tegulr Std 2x4 3/4" < 250 sf	360.00 sqft	1,173	1,225	6.66 /sqft	2,398
				Ceiling: 2x4 Tile		*1,173*	*1,225*	*/sqft*	*2,398*
				FINISHES		*1,173*	*1,225*	*/sqft*	*2,398*
				6A		***1,761***	***1,225***		***3,008***
	6B								
		4000.00		*MASONRY*					
			4520.01	*Masonry Restoration*					
				Cut & Repoint CMU Hard Mortar	90.00 lnft	931	125	14.56 /lnft	1,310
				Cut & Repoint Brick Soft Mortr	40.00 sqft	289	29	9.88 /sqft	395
				Remove Individual Brick Allow	270.00 each	18,153	-	85.37 /each	23,050
				Patch Individual Brick Allow	270.00 each	4,833	389	19.34 /each	5,222
				Remove CMU 8" Allow	45.00 each	2,683	-	64.87 /each	2,919
				Patch in 8" CMU Allow	45.00 each	1,339	120	32.42 /each	1,459
				Masonry Restoration		*28,228*	*663*	*/m*	*34,356*
				MASONRY		*28,228*	*663*	*/sqft*	*34,356*
				6B		***28,228***	***663***		***34,356***
	6C								
		2050.00		*DEMOLITION*					
			2084.50	*Demo: Misc Items*					
				Remove Lockers Top	24.00 each	414	-	17.26 /each	414
				Demo: Misc Items		*414*		*/sqft*	*414*
				DEMOLITION		*414*		*/sqft*	*414*
		10000.00		*SPECIALTIES*					
			10505.90	*Lockers*					
				Replace Locker Top	24.00 each	1,614	1,830	143.48 /each	3,444
				Lockers		*1,614*	*1,830*	*/each*	*3,444*
				SPECIALTIES		*1,614*	*1,830*	*/sqft*	*3,444*
				6C		***2,028***	***1,830***		***3,858***
	6D								
		4000.00		*MASONRY*					
			4520.01	*Masonry Restoration*					
				Remove Individual Brick	405.00 each	27,229	-	85.37 /each	34,576
				Patch Individual Brick	405.00 each	7,250	584	19.34 /each	7,833
				Masonry Restoration		*34,479*	*584*	*/m*	*42,409*
				MASONRY		*34,479*	*584*	*/sqft*	*42,409*
				6D		***34,479***	***584***		***42,409***
	6E								
		2050.00		*DEMOLITION*					
			2071.01	*Demo: General*					
				General Disposal	0.80 cuyd	16	-	27.18 /cuyd	22
				Demo: General		*16*		*/cuyd*	*22*
			2088.70	*Demo: Mechanical*					
				Remove Louvers	21.00 sqft	241	-	11.48 /sqft	241
				Demo: Mechanical		*241*		*/sqft*	*241*
				DEMOLITION		*258*		*/sqft*	*263*
		5000.00		*METALS*					
			5510.05	*Misc: Lintels*					
				Stl Angles 1000 - 2000 lbs	90.00 lb	169	132	3.34 /lb	300
				Misc: Lintels		*169*	*132*	*/lbs*	*300*
				METALS		*169*	*132*	*/sqft*	*300*
		6000.00		*WOOD & PLASTICS*					

Location	Bid Item	Group	Phase	Description	Takeoff Quantity	Labor Amount	Material Amount	Total Cost/Unit	Total Amount
			6113.40	*Blocking: Rough Bucks*					
				2 x 6 PT Louvers	36.00 lnft	97	41	3.82 /lnft	137
				Blocking: Rough Bucks		*97*	*41*	*/mbf*	*137*
				WOOD & PLASTICS		*97*	*41*	*/sqft*	*137*
		7000.00		*THERMAL & MOISTURE PROT*					
			7910.01	*Sealant - Jt Filler Gaskt*					
				Backer Rod ½"	36.00 lnft	109	3	3.12 /lnft	112
				Polysulfide Sealant 1/4" Interior	72.00 lnft	676	16	9.61 /lnft	692
				Sealant - Jt Filler Gaskt		*785*	*19*	*/lnft*	*804*
				THERMAL & MOISTURE PROT		*785*	*19*	*/sqft*	*804*
		9000.00		*FINISHES*					
			9920.01	*Painting: Interior*					
				Paint Louvers	21.00 sqft	36	7	2.06 /sqft	43
				Painting: Interior		*36*	*7*	*/sqft*	*43*
				FINISHES		*36*	*7*	*/sqft*	*43*
		15500.00		*HVAC SYSTEMS*					
			15856.00	*Louvers/Filters*					
				Fixed Blade Stormproof	21.00 sqft	808	927	82.62 /sqft	1,735
				Louvers/Filters		*808*	*927*	*/sqft*	*1,735*
				HVAC SYSTEMS		*808*	*927*	*/sqft*	*1,735*
				6E		***2,152***	***1,126***		***3,283***
	6G								
		2050.00		*DEMOLITION*					
			2079.00	*Demo: Exterior Finishes*					
				Remove Soffit & Trim	10.00 sqft	90	-	8.99 /sqft	90
				Demo: Exterior Finishes		*90*		*/sqft*	*90*
				DEMOLITION		*90*		*/sqft*	*90*
		6000.00		*WOOD & PLASTICS*					
			6450.30	*X Trim: Soffit & Eave*					
				Soffit 1/2" AC	10.00 sqft	53	12	6.53 /sqft	65
				X Trim: Soffit & Eave		*53*	*12*	*/each*	*65*
				WOOD & PLASTICS		*53*	*12*	*/sqft*	*65*
		9000.00		*FINISHES*					
			9910.01	*Painting: Exterior*					
				Paint Ext Soffit 3 ct	10.00 sqft	10	1	1.16 /sqft	12
				Painting: Exterior		*10*	*1*	*/sqft*	*12*
				FINISHES		*10*	*1*	*/sqft*	*12*
				6G		***153***	***14***		***167***
	6GG								
		3000.00		*CONCRETE*					
			3328.00	*Conc: Restoration*					
				Patch Concrete Wall	20.00 sqft	271	479	37.50 /sqft	750
				Pressure Injected Grout	1.00 dy	3,187	-	3,428.98 /dy	3,429
				Conc: Restoration		*3,458*	*479*	*/sqft*	*4,179*
				CONCRETE		*3,458*	*479*	*/sqft*	*4,179*
				6GG		***3,458***	***479***		***4,179***
	6KK								
		9000.00		*FINISHES*					
			9920.01	*Painting: Interior*					
				Paint Exist Int CMU Spray 2 ct	49,493.00 sqft	21,201	8,804	0.61 /sqft	30,006
				Painting: Interior		*21,201*	*8,804*	*/sqft*	*30,006*
				FINISHES		*21,201*	*8,804*	*/sqft*	*30,006*
				6KK		***21,201***	***8,804***		***30,006***
	6L								
		4000.00		*MASONRY*					
			4155.00	*Access: Control Joint*					
				Control Jnt Rubber 8" Wall	40.00 lnft	156	148	7.59 /lnft	304
				Access: Control Joint		*156*	*148*	*/lnft*	*304*
				MASONRY		*156*	*148*	*/sqft*	*304*
		7000.00		*THERMAL & MOISTURE PROT*					
			7910.01	*Sealant - Jt Filler Gaskt*					
				Backer Rod ½"	40.00 lnft	121	4	3.12 /lnft	125
				Polyurethane Sealant 1/2"	40.00 lnft	381	20	10.02 /lnft	401
				Rake Out Masonry Jt. Filler	40.00 lnft	118	8	4.98 /lnft	199
				Sealant - Jt Filler Gaskt		*620*	*32*	*/lnft*	*725*
				THERMAL & MOISTURE PROT		*620*	*32*	*/sqft*	*725*
				6L		***776***	***180***		***1,029***
	6LL								
		2050.00		*DEMOLITION*					
			2071.01	*Demo: General*					
				General Disposal	539.30 cuyd	11,107	-	27.17 /cuyd	14,652
				Demo: General		*11,107*		*/cuyd*	*14,652*
			2088.50	*Demo: Finishes, Ceilings*					
				Rem. Acoust Tile & Grid	58,240.00 sqft	70,131	-	1.20 /sqft	70,131
				Demo: Finishes, Ceilings		*70,131*		*/sqft*	*70,131*
				DEMOLITION		*81,238*		*/sqft*	*84,783*
		9000.00		*FINISHES*					
			9510.50	*Ceiling: 2x4 Tile*					
				MinFbr Tegulr Std 2x4 3/4" 250-500 sf	58,240.00 sqft	115,019	191,317	5.26 /sqft	306,336
				Ceiling: 2x4 Tile		*115,019*	*191,317*	*/sqft*	*306,336*
				FINISHES		*115,019*	*191,317*	*/sqft*	*306,336*

Location	Bid Item	Group	Phase	Description	Takeoff Quantity	Labor Amount	Material Amount	Total Cost/Unit	Total Amount
						196,258	***191,317***		***391,119***
				6 FINISHES GEN		**290,493**	**206,220**		**513,412**

Estimate Totals

Labor	687,465		7,273.709	hrs
Material	769,215			
Equipment	28,284		1,297.452	hrs
	1,484,964	**1,484,964**		
	Total	***1,484,964***		

BRIDGE ELEMENTARY SCHOOL RENOVATION
STUDY ESTIMATE - 11-14-08
LEXINGTON, MA

Project name Bridge E.S.

Lexington
MA

Architect **TDPC**

Estimator *Essential Estimating*

Location	Labor Amount	Material Amount	Equip Amount	Total Amount
1 LIFE SAFETY	**925**	**3,220**		**4,145**
2 BUILDING CODE	**23,625**	**15,978**	**87**	**39,690**
3 EXTERIOR	**173,935**	**337,975**	**688**	**512,597**
5 HC ACCESS	**212,973**	**280,733**	**7,401**	**501,107**
6 FINISHES GEN	**340,590**	**214,463**	**23,758**	**578,811**

Estimate Totals

Labor	752,048		7,905.513	hrs
Material	852,369			
Equipment	31,934		1,566.307	hrs
	1,636,351	**1,636,351**		
	Total	***1,636,351***		

Location	Bid Item	Description	Labor Amount	Material Amount	Equip Amount	Total Amount
1 LIFE SAFETY						
	1A		*247*	*16*		*262*
	1D		*678*	*3,205*		*3,883*
		1 LIFE SAFETY	**925**	**3,220**		**4,145**
2 BUILDING CODE						
	2C		*372*	*1,341*	*1*	*1,715*
	2D		*181*	*49*		*230*
	2F		*90*	*53*		*144*
	2G		*19,987*	*12,577*	*32*	*32,596*
	2H		*431*		*14*	*445*
	2I		*2,565*	*1,958*	*39*	*4,561*
		2 BUILDING CODE	**23,625**	**15,978**	**87**	**39,690**
3 EXTERIOR						
	3A		*162,796*	*314,829*	*351*	*477,975*
	3B		*9,736*	*17,881*	*337*	*27,954*
	3C		*1,326*	*5,251*		*6,577*
	3D		*77*	*14*		*91*
		3 EXTERIOR	**173,935**	**337,975**	**688**	**512,597**
5 HC ACCESS						
	5A		*8,642*	*474*	*532*	*9,647*
	5B		*18,364*	*32,216*	*231*	*50,810*
	5C		*1,866*	*5,297*	*24*	*7,187*
	5D		*336*		*3*	*338*
	5E		*723*			*723*
	5F		*696*	*888*	*27*	*1,611*
	5G		*4,257*	*13,505*	*16*	*17,778*
	5H		*111,253*	*62,863*	*3,205*	*177,321*
	5K		*30,374*	*18,178*	*3,003*	*51,555*
	5L		*3,565*	*15,348*	*270*	*19,183*
	5N		*2,165*	*953*	*29*	*3,147*
	5P		*543*	*2,407*		*2,949*
	5Q		*962*		*27*	*989*
	5T		*29,229*	*128,604*	*36*	*157,869*
		5 HC ACCESS	**212,973**	**280,733**	**7,401**	**501,107**
6 FINISHES GEN						
	6A		*4,308*	*2,995*	*54*	*7,357*
	6B		*103,984*	*2,226*	*19,976*	*126,187*
	6E		*629*	*306*	*1*	*937*
	6H		*454*	*188*		*642*
	6J		*4,855*	*2,343*		*7,198*
	6KK		*25,476*	*10,579*		*36,055*
	6L		*699*	*162*	*66*	*926*
	6LL		*198,785*	*193,595*	*3,647*	*396,028*
	6M		*475*	*1,622*	*14*	*2,111*
	6T		*925*	*446*		*1,371*
		6 FINISHES GEN	**340,590**	**214,463**	**23,758**	**578,811**

Estimate Totals

Labor	752,048		7,905.513	hrs
Material	852,369			
Equipment	31,934		1,566.307	hrs
	1,636,351	**1,636,351**		
		Total	***1,636,351***	

Location	Bid Item	Group	Phase	Description	Takeoff Quantity	Labor Amount	Material Amount	Total Cost/Unit	Total Amount
1 LIFE SAFETY									
	1A								
		2050.00		*DEMOLITION*					
			2084.01	*Demo: Doors & Windows*					
				Remove Door	1.00 each	32	-	32.11 /each	32
				Demo: Doors & Windows		*32*		*/each*	*32*
				DEMOLITION		*32*		*/sqft*	*32*
		8000.00		*DOORS & WINDOWS*					
			8210.01	*Doors: Wood*					
				Rehang Door	1.00 each	130	0	130.27 /each	130
				Doors: Wood		*130*		*/each*	*130*
				DOORS & WINDOWS		*130*		*/sqft*	*130*
		9000.00		*FINISHES*					
			9920.01	*Painting: Interior*					
				Paint Wd Door & Metal Frame & Prep	1.00 each	84	16	99.99 /each	100
				Painting: Interior		*84*	*16*	*/sqft*	*100*
				FINISHES		*84*	*16*	*/sqft*	*100*
				1A		***247***	***16***		***262***
	1D								
		2050.00		*DEMOLITION*					
			2084.01	*Demo: Doors & Windows*					
				Remove Hardware	2.00 each	90	-	45.21 /each	90
				Demo: Doors & Windows		*90*		*/each*	*90*
				DEMOLITION		*90*		*/sqft*	*90*
		8000.00		*DOORS & WINDOWS*					
			8710.01	*Hardware: Finishing*					
				Finishing Hardware Ext Budget	2.00 each	452	2,407	1,429.40 /each	2,859
				Finishing Hardware Int Budget w Closure	1.00 each	136	798	933.64 /each	934
				Hardware: Finishing		*588*	*3,205*	*/set*	*3,792*
				DOORS & WINDOWS		*588*	*3,205*	*/sqft*	*3,792*
				1D		***678***	***3,205***		***3,883***
				1 LIFE SAFETY		**925**	**3,220**		**4,145**
2 BUILDING CODE									
	2C								
		2050.00		*DEMOLITION*					
			2071.01	*Demo: General*					
				General Disposal	0.20 cuyd	4	-	27.15 /cuyd	5
				Demo: General		*4*		*/cuyd*	*5*
			2084.01	*Demo: Doors & Windows*					
				Remove Door	1.00 each	32	-	32.11 /each	32
				Demo: Doors & Windows		*32*		*/each*	*32*
				DEMOLITION		*36*		*/sqft*	*38*
		8000.00		*DOORS & WINDOWS*					
			8210.01	*Doors: Wood*					
				Birch Solid Core 3-0 x 7-0 Vision	1.00 each	130	529	658.87 /each	659
				Doors: Wood		*130*	*529*	*/each*	*659*
			8710.01	*Hardware: Finishing*					
				Finishing Hardware Int Budget w Closure	1.00 each	136	798	933.64 /each	934
				Hardware: Finishing		*136*	*798*	*/set*	*934*
				DOORS & WINDOWS		*266*	*1,327*	*/sqft*	*1,593*
		9000.00		*FINISHES*					
			9920.01	*Painting: Interior*					
				Paint Wd Door & Metal Frame	1.00 each	70	14	84.46 /each	84
				Painting: Interior		*70*	*14*	*/sqft*	*84*
				FINISHES		*70*	*14*	*/sqft*	*84*
				2C		***372***	***1,341***		***1,715***
	2D								
		7000.00		*THERMAL & MOISTURE PROT*					
			7270.00	*Firestopping*					
				Firesafing	50.00 lnft	181	49	4.60 /lnft	230
				Firestopping		*181*	*49*	*/lnft*	*230*
				THERMAL & MOISTURE PROT		*181*	*49*	*/sqft*	*230*
				2D		***181***	***49***		***230***
	2F								
		8000.00		*DOORS & WINDOWS*					
			8710.01	*Hardware: Finishing*					
				Smoke Seal	1.00 each	90	53	143.80 /each	144
				Hardware: Finishing		*90*	*53*	*/set*	*144*
				DOORS & WINDOWS		*90*	*53*	*/sqft*	*144*
				2F		***90***	***53***		***144***
	2G								
		2050.00		*DEMOLITION*					
			2071.01	*Demo: General*					
				General Disposal	4.90 cuyd	101	-	27.17 /cuyd	133
				Demo: General		*101*		*/cuyd*	*133*
			2084.50	*Demo: Misc Items*					
				Remove Stage Curtain	528.00 sqft	593	-	1.12 /sqft	593
				Demo: Misc Items		*593*		*/sqft*	*593*
				DEMOLITION		*694*		*/sqft*	*727*
		11000.00		*EQUIPMENT*					
			11060.01	*Equip: Stage*					
				Curtain Track Med Duty	44.00 lnft	3,627	2,413	137.26 /lnft	6,039
				Curtain Fireproof	528.00 sqft	15,666	10,165	48.92 /sqft	25,830
				Equip: Stage		*19,292*	*12,577*	*/each*	*31,869*
				EQUIPMENT		*19,292*	*12,577*	*/sqft*	*31,869*
				2G		***19,987***	***12,577***		***32,596***
	2H								
		2050.00		*DEMOLITION*					
			2071.01	*Demo: General*					

Location	Bid Item	Group	Phase	Description	Takeoff Quantity	Labor Amount	Material Amount	Total Cost/Unit	Total Amount
			2071.01	*Demo: General*					
				General Disposal	2.20 cuyd	45	-	27.17 /cuyd	60
				Demo: General		*45*		*/cuyd*	*60*
			2084.01	*Demo: Doors & Windows*					
				Remove Door	12.00 each	385	-	32.11 /each	385
				Demo: Doors & Windows		*385*		*/each*	*385*
				DEMOLITION		*431*		*/sqft*	*445*
				2H		***431***			***445***
	2I								
		4000.00		*MASONRY*					
			4050.10	*Misc: Scaffold*					
				Interior Scaffold	96.00 sqft	107	40	1.77 /sqft	170
				Misc: Scaffold		*107*	*40*	*/sqft*	*170*
			4050.15	*Misc: Material Handling*					
				Concrete Block	0.01 m	-	-	264.00 /m	2
				Misc: Material Handling				*/m*	*2*
			4105.00	*Mortar: All Types*					
				Mortar Type "N"	0.15 cuyd	18	32	337.93 /cuyd	51
				Mortar: All Types		*18*	*32*	*/cuyd*	*51*
			4110.01	*Mortar: Grout Fill Conc*					
				Grout Fill 3000 psi,1/2" Gravl	0.17 cuyd	48	33	495.12 /cuyd	84
				Grout Single Door Frame	1.00 each	64	20	88.72 /each	89
				Mortar: Grout Fill Conc		*112*	*53*	*/cuyd*	*173*
			4157.00	*Reinforce: Vertical Wall*					
				Re-Bar #5 & #6	25.03 lbs	51	27	3.09 /lbs	77
				Reinforce: Vertical Wall		*51*	*27*	*/lbs*	*77*
			4158.00	*Reinforce: Horizontl Wall*					
				Horiz Wall Reinf 6" Hot Dippd	0.06 mlf	27	10	615.50 /mlf	37
				Reinforce: Horizontl Wall		*27*	*10*	*/mlf*	*37*
			4221.20	*Conc. Block: 6"*					
				Blk 6" Stand Face Reg Wt - Infill	75.00 each	1,362	178	20.53 /each	1,540
				Conc. Block: 6"		*1,362*	*178*	*/each*	*1,540*
			4221.50	*Conc. Block: 6" Lintel*					
				Lintel 6" Stand Face Lt Wt	6.00 each	14	8	3.63 /each	22
				Conc. Block: 6" Lintel		*14*	*8*	*/each*	*22*
				MASONRY		*1,689*	*349*	*/sqft*	*2,071*
		5000.00		*METALS*					
			5510.35	*Misc: Bolt On Material*					
				Angle Bolted To Masonry	29.00 lb	102	87	6.74 /lb	196
				Misc: Bolt On Material		*102*	*87*	*/lbs*	*196*
				METALS		*102*	*87*	*/sqft*	*196*
		6000.00		*WOOD & PLASTICS*					
			6113.40	*Blocking: Rough Bucks*					
				Rough Bucks 2 x 6 PT Doors	17.00 lnft	43	19	3.63 /lnft	62
				Blocking: Rough Bucks		*43*	*19*	*/mbf*	*62*
				WOOD & PLASTICS		*43*	*19*	*/sqft*	*62*
		7000.00		*THERMAL & MOISTURE PROT*					
			7910.01	*Sealant - Jt Filler Gaskt*					
				Polysulfide Sealant 1/4" Interior	17.00 lnft	160	4	9.61 /lnft	163
				Sealant - Jt Filler Gaskt		*160*	*4*	*/lnft*	*163*
				THERMAL & MOISTURE PROT		*160*	*4*	*/sqft*	*163*
		8000.00		*DOORS & WINDOWS*					
			8110.01	*Doors: Steel with Frames*					
				H.M. Frame 18ga Interior Double	1.00 each	124	227	351.05 /each	351
				Doors: Steel with Frames		*124*	*227*	*/each*	*351*
			8210.01	*Doors: Wood*					
				Door M Core 3-0 x 7-0 Vision	1.00 each	130	426	555.96 /each	556
				Doors: Wood		*130*	*426*	*/each*	*556*
			8710.01	*Hardware: Finishing*					
				Finishing Hardware Int Budget w Closure	1.00 each	136	798	933.63 /each	934
				Hardware: Finishing		*136*	*798*	*/set*	*934*
				DOORS & WINDOWS		*390*	*1,451*	*/sqft*	*1,841*
		9000.00		*FINISHES*					
			9920.01	*Painting: Interior*					
				Paint Wd Door & Metal Frame	1.00 each	70	14	84.47 /each	84
				Paint Int CMU Spray p+2ct	118.00 sqft	111	33	1.22 /sqft	144
				Painting: Interior		*181*	*47*	*/sqft*	*229*
				FINISHES		*181*	*47*	*/sqft*	*229*
				2I		***2,565***	***1,958***		***4,561***
				2 BUILDING CODE		**23,625**	**15,978**		**39,690**
3 EXTERIOR									
	3A								
		2050.00		*DEMOLITION*					
			2071.01	*Demo: General*					
				General Disposal	53.40 cuyd	1,100	-	27.17 /cuyd	1,451
				Demo: General		*1,100*		*/cuyd*	*1,451*
			2084.01	*Demo: Doors & Windows*					
				Remove Metal Windows	5,764.00 sqft	18,047	-	3.13 /sqft	18,047
				Demo: Doors & Windows		*18,047*		*/each*	*18,047*
				DEMOLITION		*19,147*		*/sqft*	*19,498*
		4000.00		*MASONRY*					
			4156.00	*Access: Wall Flashing*					
				Flash Head Lead Ct. Cop 5 oz.	951.00 sqft	4,349	4,373	9.17 /sqft	8,722
				Flash Sill Lead Ct. Cop 5 oz.	951.00 sqft	3,965	4,107	8.49 /sqft	8,072
				Access: Wall Flashing		*8,314*	*8,481*	*/sqft*	*16,794*
				MASONRY		*8,314*	*8,481*	*/sqft*	*16,794*
		6000.00		*WOOD & PLASTICS*					
			6015.00	*Fasteners: Frame Anchors*					
				Fastners & Misc	1.00 lsum	-	30	30.48 /lsum	30
				Fasteners: Frame Anchors			*30*	*/each*	*30*
			6113.40	*Blocking: Rough Bucks*					
				Rough Bucks 2 x 6 PT Windows	2,718.00 lnft	10,332	3,070	4.93 /lnft	13,402

Location	Bid Item	Group	Phase	Description	Takeoff Quantity	Labor Amount	Material Amount	Total Cost/Unit	Total Amount
				Blocking: Rough Bucks		*10,332*	*3,070*	*/mbf*	*13,402*
				WOOD & PLASTICS		*10,332*	*3,100*	*/sqft*	*13,432*
		7000.00		*THERMAL & MOISTURE PROT*					
			7910.01	*Sealant - Jt Filler Gaskt*					
				Backer Rod ½"	2,718.00 lnft	8,239	249	3.12 /lnft	8,488
				Polyurethane Sealant 1/2"	5,436.00 lnft	51,789	2,704	10.02 /lnft	54,493
				Sealant - Jt Filler Gaskt		*60,028*	*2,953*	*/lnft*	*62,981*
				THERMAL & MOISTURE PROT		*60,028*	*2,953*	*/sqft*	*62,981*
		8000.00		*DOORS & WINDOWS*					
			8520.01	*Window: Aluminum*					
				Custom Proj 4" .125 w Ins Gl Kynar	5,764.00 sqft	64,974	300,295	63.37 /sqft	365,269
				Window: Aluminum		*64,974*	*300,295*	*/sqft*	*365,269*
				DOORS & WINDOWS		*64,974*	*300,295*	*/sqft*	*365,269*
				3A		***162,796***	***314,829***		***477,975***
	3B								
		2050.00		*DEMOLITION*					
			2071.01	*Demo: General*					
				General Disposal	51.30 cuyd	1,057	-	27.17 /cuyd	1,394
				Demo: General		*1,057*		*/cuyd*	*1,394*
			2084.01	*Demo: Doors & Windows*					
				Remove Window Treatment	5,540.00 sqft	2,669	-	0.48 /sqft	2,669
				Demo: Doors & Windows		*2,669*		*/each*	*2,669*
				DEMOLITION		*3,725*		*/sqft*	*4,062*
		12000.00		*FURNISHINGS*					
			12520.01	*Shades*					
				Vinyl Heavy Wt	5,540.00 sqft	6,011	17,881	4.31 /sqft	23,892
				Shades		*6,011*	*17,881*	*/sqft*	*23,892*
				FURNISHINGS		*6,011*	*17,881*	*/sqft*	*23,892*
				3B		***9,736***	***17,881***		***27,954***
	3C								
		8000.00		*DOORS & WINDOWS*					
			8565.00	*Windows: Screens*					
				Window Screens/Wicket (Aluminum)	704.00 sqft	1,326	5,251	9.34 /sqft	6,577
				Windows: Screens		*1,326*	*5,251*	*/each*	*6,577*
				DOORS & WINDOWS		*1,326*	*5,251*	*/sqft*	*6,577*
				3C		***1,326***	***5,251***		***6,577***
	3D								
		9000.00		*FINISHES*					
			9910.01	*Painting: Exterior*					
				Paint Ext Wood Door & Frame	1.00 each	77	14	91.35 /each	91
				Painting: Exterior		*77*	*14*	*/sqft*	*91*
				FINISHES		*77*	*14*	*/sqft*	*91*
				3D		***77***	***14***		***91***
				3 EXTERIOR		**173,935**	**337,975**		**512,597**
5 HC ACCESS									
	5A								
		2050.00		*DEMOLITION*					
			2071.01	*Demo: General*					
				General Disposal	6.90 cuyd	142	-	27.17 /cuyd	187
				Demo: General		*142*		*/cuyd*	*187*
			2076.00	*Demo: Masonry*					
				Sawcut 6" CMU	24.00 lnft	679	-	46.49 /lnft	1,116
				Tooth Jambs 1 Wythe	24.00 lnft	741	-	30.89 /lnft	741
				Remove CMU 6"	120.00 sqft	438	-	3.97 /sqft	476
				Demo: Masonry		*1,858*		*/cuft*	*2,333*
			2084.01	*Demo: Doors & Windows*					
				Remove Door	25.00 each	803	-	32.11 /each	803
				Demo: Doors & Windows		*803*		*/each*	*803*
			2088.01	*Demo: Finishes, Floors*					
				Flash Patch @ Wall Removal	10.00 sqft	23	21	4.41 /sqft	44
				Demo: Finishes, Floors		*23*	*21*	*/sqft*	*44*
				DEMOLITION		*2,826*	*21*	*/sqft*	*3,368*
		8000.00		*DOORS & WINDOWS*					
			8210.01	*Doors: Wood*					
				Rehang Door	25.00 each	3,257	0	130.27 /each	3,257
				Doors: Wood		*3,257*		*/each*	*3,257*
				DOORS & WINDOWS		*3,257*		*/sqft*	*3,257*
		9000.00		*FINISHES*					
			9210.01	*Lath/Plastr: Gyp Plaster*					
				Plaster Patch @ Wall Removal	24.00 sqft	400	43	18.83 /sqft	452
				Plaster Patch Ceiling @ Wall Removal	10.00 sqft	54	16	7.17 /sqft	72
				Lath/Plastr: Gyp Plaster		*454*	*59*	*/sqft*	*524*
			9920.01	*Painting: Interior*					
				Paint Wd Door & Metal Frame & Prep	25.00 each	2,106	394	99.98 /each	2,499
				Painting: Interior		*2,106*	*394*	*/sqft*	*2,499*
				FINISHES		*2,560*	*452*	*/sqft*	*3,023*
				5A		***8,642***	***474***		***9,647***
	5B								
		2050.00		*DEMOLITION*					
			2071.01	*Demo: General*					
				General Disposal	35.10 cuyd	723	-	27.17 /cuyd	954
				Demo: General		*723*		*/cuyd*	*954*
			2080.01	*Demo: Millwork*					
				Remove Casework	131.00 lnft	684	-	5.22 /lnft	684
				Demo: Millwork		*684*		*/sqft*	*684*
			2088.60	*Demo: Plumbing*					
				Remove Sink	27.00 each	3,317	-	122.85 /each	3,317
				Demo: Plumbing		*3,317*		*/sqft*	*3,317*
				DEMOLITION		*4,723*		*/sqft*	*4,954*
		6000.00		*WOOD & PLASTICS*					
			6113.20	*Blocking: Misc.*					

Location	Bid Item	Group	Phase	Description	Takeoff Quantity	Labor Amount	Material Amount	Total Cost/Unit	Total Amount
			6113.20	*Blocking: Misc.*					
				Blocking 2 x 6 R.L.	131.00 lnft	450	89	4.11 /lnft	539
				Blocking: Misc.		*450*	*89*	*/mbf*	*539*
				WOOD & PLASTICS		*450*	*89*	*/sqft*	*539*
		12000.00		*FURNISHINGS*					
			12350.00	*Casework*					
				School Casework Base & Top	131.00 lnft	13,191	32,127	345.94 /lnft	45,317
				Casework		*13,191*	*32,127*	*/lnft*	*45,317*
				FURNISHINGS		*13,191*	*32,127*	*/sqft*	*45,317*
				5B		***18,364***	***32,216***		***50,810***
	5C								
		2050.00		*DEMOLITION*					
			2071.01	*Demo: General*					
				General Disposal	3.60 cuyd	74	-	27.17 /cuyd	98
				Demo: General		*74*		*/cuyd*	*98*
			2080.01	*Demo: Millwork*					
				Remove Casework	16.00 lnft	83	-	5.22 /lnft	83
				Demo: Millwork		*83*		*/sqft*	*83*
				DEMOLITION		*158*		*/sqft*	*181*
		6000.00		*WOOD & PLASTICS*					
			6113.20	*Blocking: Misc.*					
				Blocking 2 x 6 R.L.	16.00 lnft	55	11	4.12 /lnft	66
				Blocking: Misc.		*55*	*11*	*/mbf*	*66*
				WOOD & PLASTICS		*55*	*11*	*/sqft*	*66*
		12000.00		*FURNISHINGS*					
			12620.00	*Furniture*					
				Library Charge Desk	16.00 lnft	1,654	5,286	433.73 /lnft	6,940
				Furniture		*1,654*	*5,286*	*/lnft*	*6,940*
				FURNISHINGS		*1,654*	*5,286*	*/sqft*	*6,940*
				5C		***1,866***	***5,297***		***7,187***
	5D								
		2050.00		*DEMOLITION*					
			2071.01	*Demo: General*					
				General Disposal	0.40 cuyd	8	-	27.15 /cuyd	11
				Demo: General		*8*		*/cuyd*	*11*
			2088.60	*Demo: Plumbing*					
				Remove Drinking Fountain	2.00 each	328	-	163.76 /each	328
				Demo: Plumbing		*328*		*/sqft*	*328*
				DEMOLITION		*336*		*/sqft*	*338*
				5D		***336***			***338***
	5E								
		2050.00		*DEMOLITION*					
			2084.50	*Demo: Misc Items*					
				Remove TV	12.00 each	723	-	60.21 /each	723
				Demo: Misc Items		*723*		*/sqft*	*723*
				DEMOLITION		*723*		*/sqft*	*723*
				5E		***723***			***723***
	5F								
		2050.00		*DEMOLITION*					
			2071.01	*Demo: General*					
				General Disposal	0.10 cuyd	2	-	27.30 /cuyd	3
				Demo: General		*2*		*/cuyd*	*3*
			2077.00	*Demo: Steel*					
				Remove Steel Rail	9.00 lnft	90	-	10.04 /lnft	90
				Demo: Steel		*90*		*/each*	*90*
				DEMOLITION		*92*		*/sqft*	*93*
		5000.00		*METALS*					
			5510.80	*Stairs: Stair Parts*					
				Stair Railing Steel 1-1/2" 6 pipe	9.00 lnft	534	877	159.66 /lnft	1,437
				Stairs: Stair Parts		*534*	*877*	*/flt*	*1,437*
				METALS		*534*	*877*	*/sqft*	*1,437*
		9000.00		*FINISHES*					
			9920.01	*Painting: Interior*					
				Paint Int Pipe Rails	54.00 lnft	69	12	1.50 /lnft	81
				Painting: Interior		*69*	*12*	*/sqft*	*81*
				FINISHES		*69*	*12*	*/sqft*	*81*
				5F		***696***	***888***		***1,611***
	5G								
		2050.00		*DEMOLITION*					
			2071.01	*Demo: General*					
				General Disposal	2.40 cuyd	49	-	27.17 /cuyd	65
				Demo: General		*49*		*/cuyd*	*65*
			2084.50	*Demo: Misc Items*					
				Remove Toilet Partitions	5.00 each	401	-	80.28 /each	401
				Remove Toilet Accessories	16.00 each	161	-	10.04 /each	161
				Demo: Misc Items		*562*		*/sqft*	*562*
				DEMOLITION		*611*		*/sqft*	*627*
		6000.00		*WOOD & PLASTICS*					
			6113.20	*Blocking: Misc.*					
				Block Toilet Partition	6.00 each	181	72	42.06 /each	252
				Block H.C. Toilet Partition	2.00 each	90	29	59.96 /each	120
				Block Misc Toilet Accessories	31.00 each	561	156	23.10 /each	716
				Blocking: Misc.		*832*	*257*	*/mbf*	*1,088*
				WOOD & PLASTICS		*832*	*257*	*/sqft*	*1,088*
		10000.00		*SPECIALTIES*					
			10160.02	*Toilet Partition Phenolic*					
				Toilet Partition Reg Flr Mtd	3.00 each	636	4,353	1,663.08 /each	4,989
				Toilet Partition HC Flr Mtd	2.00 each	424	3,342	1,882.92 /each	3,766
				Urinal Screens Wall Hung	3.00 each	445	1,395	613.42 /each	1,840
				Toilet Partition Phenolic		*1,505*	*9,091*	*/each*	*10,595*
			10800.01	*Toilet Accessories*					
				Grab Bar 1-1/4" S.S. 36"	4.00 each	145	156	75.12 /each	300

Location	Bid Item	Group	Phase	Description	Takeoff Quantity	Labor Amount	Material Amount	Total Cost/Unit	Total Amount
			10800.01	*Toilet Accessories*					
				Mirror 18" x 30" S.S.	4.00 each	188	321	127.27 /each	509
				Sanitary Napkin Dispenser Recessed	1.00 each	48	1,036	1,083.80 /each	1,084
				Clothes Hook Single	5.00 each	100	96	39.26 /each	196
				Soap Dispenser	4.00 each	289	828	279.46 /each	1,118
				Stainless Steel Shelf	6.00 lnft	99	228	54.52 /lnft	327
				Toilet Tissue Disp Dbl	5.00 each	151	138	57.62 /each	288
				Towel Disp/Waste Recpt	2.00 each	289	1,355	821.95 /each	1,644
				Toilet Accessories		*1,309*	*4,157*	*/each*	*5,467*
				SPECIALTIES		*2,814*	*13,248*	*/sqft*	*16,062*
				5G		***4,257***	***13,505***		***17,778***
	5H								
		2050.00		*DEMOLITION*					
			2071.01	*Demo: General*					
				General Disposal	30.20 cuyd	622	-	27.17 /cuyd	821
				Demo: General		*622*		*/cuyd*	*821*
			2075.00	*Demo: Concrete*					
				Saw Concrete Slab to 6"	200.00 lnft	1,090	-	7.56 /lnft	1,512
				Chip out Slab	160.00 sqft	1,978	14	14.12 /sqft	2,259
				Demo: Concrete		*3,069*	*14*	*/cuyd*	*3,771*
			2076.00	*Demo: Masonry*					
				Remove CMU 6"	2,004.00 sqft	7,307	-	3.97 /sqft	7,948
				Demo: Masonry		*7,307*		*/cuft*	*7,948*
			2084.50	*Demo: Misc Items*					
				Remove Toilet Partitions	11.00 each	883	-	80.28 /each	883
				Remove Urinal Screen	3.00 each	169	-	56.20 /each	169
				Remove Toilet Accessories	60.00 each	602	-	10.04 /each	602
				Demo: Misc Items		*1,654*		*/sqft*	*1,654*
			2088.01	*Demo: Finishes, Floors*					
				Remove Ceramic Tile Floor	640.00 sqft	1,182	-	1.85 /sqft	1,182
				Flash Patch @ Wall Removal	167.00 sqft	385	352	4.41 /sqft	737
				Demo: Finishes, Floors		*1,566*	*352*	*/sqft*	*1,919*
			2088.50	*Demo: Finishes, Ceilings*					
				Remove Plaster Ceiling Metal Lath	640.00 sqft	1,439	-	2.25 /sqft	1,439
				Demo: Finishes, Ceilings		*1,439*		*/sqft*	*1,439*
			2088.60	*Demo: Plumbing*					
				Remove Sink	15.00 each	1,843	-	122.85 /each	1,843
				Remove Water Closet	19.00 each	2,668	-	140.41 /each	2,668
				Remove Urinal	6.00 each	1,474	-	245.69 /each	1,474
				Demo: Plumbing		*5,985*		*/sqft*	*5,985*
				DEMOLITION		*21,641*	*366*	*/sqft*	*23,535*
		3000.00		*CONCRETE*					
			3310.01	*Conc: Slabs On Grade*					
				Patch Conc. Slab Trench etc.	160.00 sqft	867	1,891	17.24 /sqft	2,758
				Conc: Slabs On Grade		*867*	*1,891*	*/cuyd*	*2,758*
				CONCRETE		*867*	*1,891*	*/sqft*	*2,758*
		4000.00		*MASONRY*					
			4050.10	*Misc: Scaffold*					
				Interior Scaffold	2,160.00 sqft	2,402	906	1.77 /sqft	3,822
				Misc: Scaffold		*2,402*	*906*	*/sqft*	*3,822*
			4050.15	*Misc: Material Handling*					
				Concrete Block	2.43 m	-	-	262.94 /m	639
				Misc: Material Handling				*/m*	*639*
			4105.00	*Mortar: All Types*					
				Mortar Type "N"	4.50 cuyd	546	975	337.98 /cuyd	1,521
				Mortar: All Types		*546*	*975*	*/cuyd*	*1,521*
			4110.01	*Mortar: Grout Fill Conc*					
				Grout Fill 3000 psi,1/2" Gravl	1.72 cuyd	484	331	494.63 /cuyd	851
				Grout Single Door Frame	10.00 each	636	204	88.73 /each	887
				Mortar: Grout Fill Conc		*1,121*	*535*	*/cuyd*	*1,738*
			4157.00	*Reinforce: Vertical Wall*					
				Re-Bar #5 & #6	375.48 lbs	759	401	3.09 /lbs	1,159
				Reinforce: Vertical Wall		*759*	*401*	*/lbs*	*1,159*
			4158.00	*Reinforce: Horizontl Wall*					
				Horiz Wall Reinf 6" Hot Dippd	1.62 mlf	721	276	615.61 /mlf	997
				Reinforce: Horizontl Wall		*721*	*276*	*/mlf*	*997*
			4221.20	*Conc. Block: 6"*					
				Blk 6" Standard Face Reg Wt	2,295.00 each	28,064	5,156	14.48 /each	33,220
				Conc. Block: 6"		*28,064*	*5,156*	*/each*	*33,220*
			4221.50	*Conc. Block: 6" Lintel*					
				Lintel 6" Stand Face Reg Wt	135.00 each	2,508	887	26.60 /each	3,591
				Conc. Block: 6" Lintel		*2,508*	*887*	*/each*	*3,591*
				MASONRY		*36,121*	*9,134*	*/sqft*	*46,688*
		5000.00		*METALS*					
			5510.35	*Misc: Bolt On Material*					
				Angle Bolted To Masonry	644.00 lb	2,276	1,939	6.74 /lb	4,342
				Misc: Bolt On Material		*2,276*	*1,939*	*/lbs*	*4,342*
				METALS		*2,276*	*1,939*	*/sqft*	*4,342*
		6000.00		*WOOD & PLASTICS*					
			6113.20	*Blocking: Misc.*					
				Block Toilet Partition	7.00 each	211	84	42.05 /each	294
				Block H.C. Toilet Partition	2.00 each	90	29	59.96 /each	120
				Block Misc Toilet Accessories	113.00 each	2,044	567	23.10 /each	2,611
				Blocking: Misc.		*2,345*	*680*	*/mbf*	*3,025*
			6113.40	*Blocking: Rough Bucks*					
				Rough Bucks 2 x 6 Doors	170.00 lnft	426	115	3.18 /lnft	541
				Blocking: Rough Bucks		*426*	*115*	*/mbf*	*541*
				WOOD & PLASTICS		*2,770*	*796*	*/sqft*	*3,566*
		7000.00		*THERMAL & MOISTURE PROT*					
			7910.01	*Sealant - Jt Filler Gaskt*					
				Polysulfide Sealant 1/4" Interior	170.00 lnft	1,595	38	9.61 /lnft	1,633
				Sealant - Jt Filler Gaskt		*1,595*	*38*	*/lnft*	*1,633*
				THERMAL & MOISTURE PROT		*1,595*	*38*	*/sqft*	*1,633*
		8000.00		*DOORS & WINDOWS*					

Location	Bid Item	Group	Phase	Description	Takeoff Quantity	Labor Amount	Material Amount	Total Cost/Unit	Total Amount
			8110.01	*Doors: Steel with Frames*					
				H.M. Frame 18ga Interior Single	10.00 each	989	1,728	271.74 /each	2,717
				Doors: Steel with Frames		*989*	*1,728*	*/each*	*2,717*
			8210.01	*Doors: Wood*					
				Door M Core 3-0 x 7-0 Louver	10.00 each	1,380	4,981	636.08 /each	6,361
				Doors: Wood		*1,380*	*4,981*	*/each*	*6,361*
			8710.01	*Hardware: Finishing*					
				Finishing Hardware Int Budget w Closure	10.00 each	1,356	7,980	933.63 /each	9,336
				Hardware: Finishing		*1,356*	*7,980*	*/set*	*9,336*
				DOORS & WINDOWS		*3,725*	*14,689*	*/sqft*	*18,414*
		9000.00		*FINISHES*					
			9210.01	*Lath/Plastr: Gyp Plaster*					
				Plaster Patch @ Wall Removal	228.00 sqft	3,796	405	18.83 /sqft	4,294
				Plaster Patch Ceiling @ Wall Removal	167.00 sqft	908	266	7.17 /sqft	1,198
				Lath/Plastr: Gyp Plaster		*4,705*	*671*	*/sqft*	*5,492*
			9253.30	*GWB: Boards & Sheathing*					
				GWB 5/8" Water Resistant Clgs	640.00 sqft	593	277	1.36 /sqft	871
				GWB: Boards & Sheathing		*593*	*277*	*/sqft*	*871*
			9254.00	*GWB: Finish Mud/Tape*					
				Labor GWB Ceiling Finish	640.00 sqft	713	49	1.19 /sqft	762
				GWB: Finish Mud/Tape		*713*	*49*	*/sqft*	*762*
			9310.01	*Ceramic Tile*					
				Ceramic Tile Floor Grade 2	640.00 sqft	8,916	3,887	20.00 /sqft	12,802
				Ceramic Trim: Cove Base	320.00 lnft	8,199	1,395	29.98 /lnft	9,594
				Ceramic Tile		*17,115*	*5,281*	*/sqft*	*22,396*
			9510.10	*Ceiling: Susp. System*					
				Susp Clg 1-1/2" Channel	640.00 sqft	2,149	1,000	4.92 /sqft	3,149
				Ceiling: Susp. System		*2,149*	*1,000*	*/sqft*	*3,149*
			9920.01	*Painting: Interior*					
				Paint Wd Door & Metal Frame	10.00 each	702	143	84.47 /each	845
				Epoxy Paint GDW Clg	640.00 sqft	1,481	504	3.10 /sqft	1,985
				Paint Int CMU Spray p+2ct	1,800.00 sqft	1,696	503	1.22 /sqft	2,200
				Epoxy Paint Int CMU	1,800.00 sqft	4,164	1,510	3.15 /sqft	5,674
				Epoxy Paint Exist Int CMU	1,800.00 sqft	2,622	1,006	2.02 /sqft	3,628
				Painting: Interior		*10,664*	*3,666*	*/sqft*	*14,331*
				FINISHES		*35,939*	*10,945*	*/sqft*	*47,000*
		10000.00		*SPECIALTIES*					
			10160.02	*Toilet Partition Phenolic*					
				Toilet Partition Reg Flr Mtd	7.00 each	1,484	10,158	1,663.08 /each	11,642
				Toilet Partition HC Flr Mtd	2.00 each	424	3,342	1,882.92 /each	3,766
				Toilet Partition Phenolic		*1,908*	*13,500*	*/each*	*15,407*
			10800.01	*Toilet Accessories*					
				Grab Bar 1-1/4" S.S. 36"	22.00 each	796	857	75.12 /each	1,653
				Mirror 18" x 30" S.S.	15.00 each	705	1,204	127.26 /each	1,909
				Sanitary Napkin Dispenser Recessed	1.00 each	48	1,036	1,083.81 /each	1,084
				Clothes Hook Single	8.00 each	161	154	39.26 /each	314
				Soap Dispenser	15.00 each	1,085	3,107	279.46 /each	4,192
				Stainless Steel Shelf	23.00 lnft	379	875	54.51 /lnft	1,254
				Toilet Tissue Disp Dbl	18.00 each	542	495	57.62 /each	1,037
				Towel Dispenser Surface Mtd	9.00 each	407	484	99.03 /each	891
				Towel Disp/Waste Recpt	2.00 each	289	1,355	821.95 /each	1,644
				Toilet Accessories		*4,412*	*9,566*	*/each*	*13,977*
				SPECIALTIES		*6,319*	*23,066*	*/sqft*	*29,385*
				5H		***111,253***	***62,863***		***177,321***
	5K								
		2050.00		*DEMOLITION*					
			2071.01	*Demo: General*					
				General Disposal	5.30 cuyd	109	-	27.17 /cuyd	144
				Shore - Screw Jack	12.00 each	12,770	820	1,196.92 /each	14,363
				Demo: General		*12,879*	*820*	*/cuyd*	*14,507*
			2076.00	*Demo: Masonry*					
				Cut Out Opng 6" CMU	84.00 sqft	2,396	-	31.03 /sqft	2,606
				Sawcut 6" CMU	96.00 lnft	2,716	-	46.49 /lnft	4,463
				Tooth Jambs 1 Wythe	85.00 lnft	2,626	-	30.89 /lnft	2,626
				Demo: Masonry		*7,737*		*/cuft*	*9,695*
			2084.01	*Demo: Doors & Windows*					
				Remove Door & Frame Int Single	12.00 each	1,349	-	127.52 /each	1,530
				Demo: Doors & Windows		*1,349*		*/each*	*1,530*
				DEMOLITION		*21,965*	*820*	*/sqft*	*25,732*
		4000.00		*MASONRY*					
			4110.01	*Mortar: Grout Fill Conc*					
				Grout Single Door Frame	12.00 each	764	245	88.73 /each	1,065
				Mortar: Grout Fill Conc		*764*	*245*	*/cuyd*	*1,065*
				MASONRY		*764*	*245*	*/sqft*	*1,065*
		6000.00		*WOOD & PLASTICS*					
			6113.40	*Blocking: Rough Bucks*					
				Rough Bucks 2 x 6 Doors	204.00 lnft	511	138	3.18 /lnft	649
				Blocking: Rough Bucks		*511*	*138*	*/mbf*	*649*
				WOOD & PLASTICS		*511*	*138*	*/sqft*	*649*
		7000.00		*THERMAL & MOISTURE PROT*					
			7910.01	*Sealant - Jt Filler Gaskt*					
				Polysulfide Sealant 1/4" Interior	204.00 lnft	1,914	45	9.61 /lnft	1,959
				Sealant - Jt Filler Gaskt		*1,914*	*45*	*/lnft*	*1,959*
				THERMAL & MOISTURE PROT		*1,914*	*45*	*/sqft*	*1,959*
		8000.00		*DOORS & WINDOWS*					
			8110.01	*Doors: Steel with Frames*					
				H.M. Frame 18ga Interior Single	12.00 each	1,187	2,074	271.74 /each	3,261
				Doors: Steel with Frames		*1,187*	*2,074*	*/each*	*3,261*
			8210.01	*Doors: Wood*					
				Door M Core 3-0 x 7-0 Vision	12.00 each	1,563	5,108	555.95 /each	6,671
				Doors: Wood		*1,563*	*5,108*	*/each*	*6,671*
			8710.01	*Hardware: Finishing*					
				Finishing Hardware Int Budget w Closure	12.00 each	1,628	9,576	933.63 /each	11,204

Location	Bid Item	Group	Phase	Description	Takeoff Quantity	Labor Amount	Material Amount	Total Cost/Unit	Total Amount
				Hardware: Finishing		*1,628*	*9,576*	*/set*	*11,204*
				DOORS & WINDOWS		*4,378*	*16,758*	*/sqft*	*21,136*
		9000.00		*FINISHES*					
			9920.01	*Painting: Interior*					
				Paint Wd Door & Metal Frame	12.00 each	842	172	84.47 /each	1,014
				Painting: Interior		*842*	*172*	*/sqft*	*1,014*
				FINISHES		*842*	*172*	*/sqft*	*1,014*
				5K		***30,374***	***18,178***		***51,555***
	5L								
		2050.00		*DEMOLITION*					
			2071.01	*Demo: General*					
				General Disposal	0.60 cuyd	12	-	27.18 /cuyd	16
				Demo: General		*12*		*/cuyd*	*16*
			2075.00	*Demo: Concrete*					
				Saw Concrete Slab to 6"	24.00 lnft	131	-	7.56 /lnft	181
				Chip out Slab	35.00 sqft	433	3	14.12 /sqft	494
				Demo: Concrete		*564*	*3*	*/cuyd*	*676*
				DEMOLITION		*576*	*3*	*/sqft*	*692*
		14000.00		*CONVEYING SYSTEMS*					
			14405.00	*Lifts*					
				Lift Commercial	1.00 each	2,989	15,345	18,491.40 /each	18,491
				Lifts		*2,989*	*15,345*	*/each*	*18,491*
				CONVEYING SYSTEMS		*2,989*	*15,345*	*/sqft*	*18,491*
				5L		***3,565***	***15,348***		***19,183***
	5N								
		3000.00		*CONCRETE*					
			3131.00	*Forms: Ramps*					
				Ramp Forms 2 use	214.00 lnft	1,693	381	9.69 /lnft	2,073
				Forms: Ramps		*1,693*	*381*	*/lnft*	*2,073*
			3225.00	*Rebar: WWM @ Ramp/Misc*					
				Wiremesh - Ramp 6x6 6/6	1.76 sqs	122	90	119.99 /sqs	211
				Rebar: WWM @ Ramp/Misc		*122*	*90*	*/sqs*	*211*
			3309.50	*Conc: Ramps*					
				Ramp Conc 4000 psi	3.26 cuyd	150	462	196.65 /cuyd	641
				Conc: Ramps		*150*	*462*	*/cuyd*	*641*
			3375.00	*Finish: Protect & Cure*					
				Cure Conc w/burlap Ramp	1.76 sqs	45	21	37.43 /sqs	66
				Finish: Protect & Cure		*45*	*21*	*/sqs*	*66*
			3380.01	*Finish: General*					
				Broom/Float Finish Ramp	176.00 sqft	155	-	0.88 /sqft	155
				Finish: General		*155*		*/sqft*	*155*
				CONCRETE		*2,165*	*953*	*/sqft*	*3,147*
				5N		***2,165***	***953***		***3,147***
	5P								
		2050.00		*DEMOLITION*					
			2084.01	*Demo: Doors & Windows*					
				Remove Hardware	2.00 each	90	-	45.22 /each	90
				Demo: Doors & Windows		*90*		*/each*	*90*
				DEMOLITION		*90*		*/sqft*	*90*
		8000.00		*DOORS & WINDOWS*					
			8710.01	*Hardware: Finishing*					
				Finishing Hardware Ext Budget	2.00 each	452	2,407	1,429.40 /each	2,859
				Hardware: Finishing		*452*	*2,407*	*/set*	*2,859*
				DOORS & WINDOWS		*452*	*2,407*	*/sqft*	*2,859*
				5P		***543***	***2,407***		***2,949***
	5Q								
		2050.00		*DEMOLITION*					
			2075.00	*Demo: Concrete*					
				Remove Locker Base	8.00 lnft	136	-	20.38 /lnft	163
				Demo: Concrete		*136*		*/cuyd*	*163*
			2084.50	*Demo: Misc Items*					
				Relocate Lockers	8.00 each	826	-	103.24 /each	826
				Demo: Misc Items		*826*		*/sqft*	*826*
				DEMOLITION		*962*		*/sqft*	*989*
				5Q		***962***			***989***
	5T								
		2050.00		*DEMOLITION*					
			2071.01	*Demo: General*					
				General Disposal	5.50 cuyd	113	-	27.17 /cuyd	149
				Demo: General		*113*		*/cuyd*	*149*
			2084.01	*Demo: Doors & Windows*					
				Remove Hardware	151.00 each	6,827	-	45.21 /each	6,827
				Demo: Doors & Windows		*6,827*		*/each*	*6,827*
				DEMOLITION		*6,940*		*/sqft*	*6,976*
		8000.00		*DOORS & WINDOWS*					
			8710.01	*Hardware: Finishing*					
				Finishing Hardware Ext Budget	20.00 each	4,521	24,067	1,429.40 /each	28,588
				Finishing Hardware Int Budget w Closure	131.00 each	17,768	104,537	933.63 /each	122,305
				Hardware: Finishing		*22,289*	*128,604*	*/set*	*150,893*
				DOORS & WINDOWS		*22,289*	*128,604*	*/sqft*	*150,893*
				5T		***29,229***	***128,604***		***157,869***
				5 HC ACCESS		**212,973**	**280,733**		**501,107**
6 FINISHES GEN									
	6A								
		2050.00		*DEMOLITION*					
			2071.01	*Demo: General*					
				General Disposal	8.20 cuyd	169	-	27.17 /cuyd	223
				Demo: General		*169*		*/cuyd*	*223*
			2088.50	*Demo: Finishes, Ceilings*					
				Remove Acoust Tile	880.00 sqft	1,272	-	1.45 /sqft	1,272

Location	Bid Item	Group	Phase	Description	Takeoff Quantity	Labor Amount	Material Amount	Total Cost/Unit	Total Amount
				Demo: Finishes, Ceilings		*1,272*		*/sqft*	*1,272*
				DEMOLITION		*1,441*		*/sqft*	*1,494*
		9000.00		*FINISHES*					
			9510.50	*Ceiling: 2x4 Tile*					
				MinFbr Tegulr Std 2x4 3/4" < 250 sf	880.00 sqft	2,868	2,995	6.66 /sqft	5,862
				Ceiling: 2x4 Tile		*2,868*	*2,995*	*/sqft*	*5,862*
				FINISHES		*2,868*	*2,995*	*/sqft*	*5,862*
				6A		***4,308***	***2,995***		***7,357***
	6B								
		4000.00		*MASONRY*					
			4520.01	*Masonry Restoration*					
				Cut & Repoint CMU Hard Mortar	150.00 lnft	1,552	208	14.56 /lnft	2,183
				Cut & Repoint Brick Soft Mortr	150.00 sqft	1,083	108	9.88 /sqft	1,482
				Remove Individual Brick Allow	1,013.00 each	68,109	-	85.38 /each	86,486
				Patch Individual Brick Allow	1,013.00 each	18,134	1,460	19.34 /each	19,594
				Remove CMU 8" Allow	169.00 each	10,078	-	64.87 /each	10,963
				Patch in 8" CMU Allow	169.00 each	5,028	451	32.42 /each	5,479
				Masonry Restoration		*103,984*	*2,227*	*/m*	*126,187*
				MASONRY		*103,984*	*2,227*	*/sqft*	*126,187*
				6B		***103,984***	***2,227***		***126,187***
	6E								
		2050.00		*DEMOLITION*					
			2071.01	*Demo: General*					
				General Disposal	0.20 cuyd	4	-	27.15 /cuyd	5
				Demo: General		*4*		*/cuyd*	*5*
			2088.70	*Demo: Mechanical*					
				Remove Louvers	5.00 sqft	57	-	11.48 /sqft	57
				Demo: Mechanical		*57*		*/sqft*	*57*
				DEMOLITION		*62*		*/sqft*	*63*
		5000.00		*METALS*					
			5510.05	*Misc: Lintels*					
				Stl Angles 1000 - 2000 lbs	49.00 lb	92	72	3.34 /lb	164
				Misc: Lintels		*92*	*72*	*/lbs*	*164*
				METALS		*92*	*72*	*/sqft*	*164*
		6000.00		*WOOD & PLASTICS*					
			6113.40	*Blocking: Rough Bucks*					
				2 x 6 PT Louvers	5.00 lnft	13	6	3.82 /lnft	19
				Blocking: Rough Bucks		*13*	*6*	*/mbf*	*19*
				WOOD & PLASTICS		*13*	*6*	*/sqft*	*19*
		7000.00		*THERMAL & MOISTURE PROT*					
			7910.01	*Sealant - Jt Filler Gaskt*					
				Backer Rod ½"	12.00 lnft	36	1	3.12 /lnft	37
				Polysulfide Sealant 1/4" Interior	24.00 lnft	225	5	9.61 /lnft	231
				Sealant - Jt Filler Gaskt		*262*	*6*	*/lnft*	*268*
				THERMAL & MOISTURE PROT		*262*	*6*	*/sqft*	*268*
		9000.00		*FINISHES*					
			9920.01	*Painting: Interior*					
				Paint Louvers	5.00 sqft	9	2	2.06 /sqft	10
				Painting: Interior		*9*	*2*	*/sqft*	*10*
				FINISHES		*9*	*2*	*/sqft*	*10*
		15500.00		*HVAC SYSTEMS*					
			15856.00	*Louvers/Filters*					
				Fixed Blade Stormproof	5.00 sqft	192	221	82.62 /sqft	413
				Louvers/Filters		*192*	*221*	*/sqft*	*413*
				HVAC SYSTEMS		*192*	*221*	*/sqft*	*413*
				6E		***629***	***306***		***937***
	6H								
		9000.00		*FINISHES*					
			9920.01	*Painting: Interior*					
				Paint Exist Int CMU Spray 2 ct	1,059.00 sqft	454	188	0.61 /sqft	642
				Painting: Interior		*454*	*188*	*/sqft*	*642*
				FINISHES		*454*	*188*	*/sqft*	*642*
				6H		***454***	***188***		***642***
	6J								
		8000.00		*DOORS & WINDOWS*					
			8811.00	*Glass: All Types*					
				Reglaze Insulated Tinted Glass	84.00 sqft	4,855	2,343	85.69 /sqft	7,198
				Glass: All Types		*4,855*	*2,343*	*/sqft*	*7,198*
				DOORS & WINDOWS		*4,855*	*2,343*	*/sqft*	*7,198*
				6J		***4,855***	***2,343***		***7,198***
	6KK								
		9000.00		*FINISHES*					
			9920.01	*Painting: Interior*					
				Paint Exist Int CMU Spray 2 ct	59,468.00 sqft	25,476	10,579	0.61 /sqft	36,055
				Painting: Interior		*25,476*	*10,579*	*/sqft*	*36,055*
				FINISHES		*25,476*	*10,579*	*/sqft*	*36,055*
				6KK		***25,476***	***10,579***		***36,055***
	6L								
		4000.00		*MASONRY*					
			4155.00	*Access: Control Joint*					
				Control Jnt Rubber 8" Wall	36.00 lnft	140	133	7.59 /lnft	273
				Access: Control Joint		*140*	*133*	*/lnft*	*273*
				MASONRY		*140*	*133*	*/sqft*	*273*
		7000.00		*THERMAL & MOISTURE PROT*					
			7910.01	*Sealant - Jt Filler Gaskt*					
				Backer Rod ½"	36.00 lnft	109	3	3.12 /lnft	112
				Polyurethane Sealant 1/2"	36.00 lnft	343	18	10.02 /lnft	361
				Rake Out Masonry Jt. Filler	36.00 lnft	106	7	4.98 /lnft	179
				Sealant - Jt Filler Gaskt		*558*	*29*	*/lnft*	*652*
				THERMAL & MOISTURE PROT		*558*	*29*	*/sqft*	*652*

Location	Bid Item	Group	Phase	Description	Takeoff Quantity	Labor Amount	Material Amount	Total Cost/Unit	Total Amount
						698	***162***		***926***
	6LL								
		2050.00		*DEMOLITION*					
			2071.01	*Demo: General*					
				General Disposal	554.90 cuyd	11,429	-	27.17 /cuyd	15,076
				Demo: General		*11,429*		*/cuyd*	*15,076*
			2088.50	*Demo: Finishes, Ceilings*					
				Rem. Acoust Tile & Grid	58,931.00 sqft	70,967	-	1.20 /sqft	70,967
				Demo: Finishes, Ceilings		*70,967*		*/sqft*	*70,967*
				DEMOLITION		*82,396*		*/sqft*	*86,043*
		9000.00		*FINISHES*					
			9510.50	*Ceiling: 2x4 Tile*					
				MinFbr Tegulr Std 2x4 3/4" 250-500 sf	58,931.00 sqft	116,390	193,595	5.26 /sqft	309,985
				Ceiling: 2x4 Tile		*116,390*	*193,595*	*/sqft*	*309,985*
				FINISHES		*116,390*	*193,595*	*/sqft*	*309,985*
				6LL		***198,785***	***193,595***		***396,028***
	6M								
		2050.00		*DEMOLITION*					
			2071.01	*Demo: General*					
				General Disposal	2.10 cuyd	43	-	27.17 /cuyd	57
				Demo: General		*43*		*/cuyd*	*57*
			2084.01	*Demo: Doors & Windows*					
				Remove Window Treatment	224.00 sqft	108	-	0.48 /sqft	108
				Demo: Doors & Windows		*108*		*/each*	*108*
				DEMOLITION		*151*		*/sqft*	*165*
		12000.00		*FURNISHINGS*					
			12510.01	*Blinds*					
				Horiz 1" Alum Avg	224.00 sqft	324	1,622	8.69 /sqft	1,946
				Blinds		*324*	*1,622*	*/sqft*	*1,946*
				FURNISHINGS		*324*	*1,622*	*/sqft*	*1,946*
				6M		***475***	***1,622***		***2,111***
	6T								
		8000.00		*DOORS & WINDOWS*					
			8811.00	*Glass: All Types*					
				Reglaze Insulated Tinted Glass	16.00 sqft	925	446	85.69 /sqft	1,371
				Glass: All Types		*925*	*446*	*/sqft*	*1,371*
				DOORS & WINDOWS		*925*	*446*	*/sqft*	*1,371*
				6T		***925***	***446***		***1,371***
				6 FINISHES GEN		**340,590**	**214,463**		**578,811**

Estimate Totals

Labor	752,048		7,905.513	hrs
Material	852,369			
Equipment	31,934		1.566.307	hrs
	1,636,351	**1,636,351**		
	Total	***1,636,351***		

Project name Estabrook E.S.

Lexington
MA

Estimator *Essential Estimating*

Location	Labor Amount	Material Amount	Sub Amount	Equip Amount	Total Amount
1 LIFE SAFETY	**1,085**	**4,812**			**5,896**
2 BUILDING CODE	**12,357**	**9,278**		**279**	**21,915**
3 EXTERIOR	**191,961**	**328,054**		**9,008**	**529,023**
4 HAZARDOUS MAT	**345,724**	**141,176**	**3,697**	**46,148**	**558,765**
5 HC ACCESS	**199,308**	**300,502**		**6,684**	**506,494**
6 FINISHES GEN	**63,591**	**38,845**		**1,254**	**103,689**

Estimate Totals

Labor	814,026		9,223.716	hrs
Material	822,666			
Subcontract	3,697			
Equipment	63,373		1,419.281	hrs
Other	22,020			
	1,725,782	**1,725,782**		
	Total	***1,725,782***		

Location	Bid Item	Description	Labor Amount	Material Amount	Sub Amount	Equip Amount	Total Amount
1 LIFE SAFETY							
	1D		*1,085*	*4,812*			*5,896*
		1 LIFE SAFETY	**1,085**	**4,812**			**5,896**
2 BUILDING CODE							
	2D		*260*	*70*			*331*
	2H		*109*			*4*	*113*
	2I		*11,988*	*9,207*		*276*	*21,471*
		2 BUILDING CODE	**12,357**	**9,278**		**279**	**21,915**
3 EXTERIOR							
	3A		*124,059*	*290,932*		*330*	*415,321*
	3B		*9,531*	*17,506*		*330*	*27,368*
	3C		*949*	*3,758*			*4,707*
	3E		*27,063*			*8,001*	*35,064*
	3P		*436*	*55*			*491*
	3Q		*4,076*	*334*			*4,410*
	3R		*25,847*	*15,469*		*348*	*41,664*
		3 EXTERIOR	**191,961**	**328,054**		**9,008**	**529,023**
4 HAZARDOUS MAT							
	4D		*328,862*	*139,724*	*2,773*	*46,148*	*535,838*
	4E		*10,528*	*1,301*	*462*		*15,072*
	4F		*6,335*	*150*	*462*		*7,855*
		4 HAZARDOUS MAT	**345,724**	**141,176**	**3,697**	**46,148**	**558,765**
5 HC ACCESS							
	5A		*11,721*	*6,196*		*871*	*18,787*
	5B		*18,448*	*39,825*		*237*	*58,510*
	5C		*1,399*	*3,971*		*18*	*5,388*
	5CC		*2,968*	*1,554*		*70*	*4,592*
	5D		*833*			*5*	*837*
	5E		*60*				*60*
	5F		*610*	*754*		*22*	*1,386*
	5G		*10,599*	*30,436*		*38*	*41,074*
	5H		*87,333*	*53,969*		*2,774*	*144,076*
	5K		*15,582*	*8,820*		*1,960*	*26,362*
	5L		*3,338*	*15,341*		*230*	*18,908*
	5N		*5,300*	*7,454*		*192*	*12,945*
	5Q		*4,717*			*140*	*4,857*
	5R		*823*	*12,347*		*3*	*13,172*
	5T		*26,769*	*117,808*		*34*	*144,610*
	5W		*8,809*	*2,026*		*93*	*10,928*
		5 HC ACCESS	**199,308**	**300,502**		**6,684**	**506,494**
6 FINISHES GEN							
	6A		*744*	*517*		*9*	*1,270*
	6B		*16,873*	*2,493*		*588*	*19,954*
	6CC		*677*	*1,197*			*1,874*
	6D		*1,335*	*133*		*359*	*1,828*
	6F		*890*	*75*		*23*	*988*
	6KK		*25,211*	*10,470*			*35,680*
	6L		*640*	*148*		*60*	*848*
	6M		*2,202*	*7,530*		*63*	*9,795*
	6MM		*396*	*173*			*568*

Location	Bid Item	Description	Labor Amount	Material Amount	Sub Amount	Equip Amount	Total Amount
			6,451	***8,922***		***1***	***15,374***
	6P		***4,259***	***6,061***		***90***	***10,410***
	6Q		***1,619***	***393***		***2***	***2,014***
	6QQ		***91***	***36***			***127***
	6R		***148***	***36***		***4***	***187***
	6S		***1,398***	***149***		***33***	***1,580***
	6U		***93***	***38***			***131***
	6YY		***267***	***107***		***21***	***396***
	6ZZ		***296***	***367***		***1***	***664***
		6 FINISHES GEN	**63,591**	**38,845**		**1,254**	**103,689**

Estimate Totals

Labor	814,026		9,223.716	hrs
Material	822,666			
Subcontract	3,697			
Equipment	63,373		1,419.281	hrs
Other	22,020			
	1,725,782	**1,725,782**		
	Total	***1,725,782***		

Location	Bid Item	Phase	Description	Takeoff Quantity	Labor Amount	Material Amount	Total Cost/Unit	Total Amount
1 LIFE SAFETY								
	1D							
		2084.01	Remove Hardware	4.00 each	181	-	45.19 /each	181
		8710.01	Finishing Hardware Ext Budget	4.00 each	904	4,812	1,428.88 /each	5,716
			1D		***1,085***	***4,812***		***5,896***
			1 LIFE SAFETY		**1,085**	**4,812**		**5,896**
2 BUILDING CODE								
	2D							
		7270.00	Firesafing	72.00 lnft	260	70	4.59 /lnft	331
			2D		***260***	***70***		***331***
	2H							
		2071.01	General Disposal	0.60 cuyd	12	-	27.17 /cuyd	16
		2084.01	Remove Door	3.00 each	96	-	32.10 /each	96
			2H		***109***			***113***
	2I							
		4050.10	Interior Scaffold	480.00 sqft	534	201	1.77 /sqft	849
		4050.15	Concrete Block	0.39 m	-	-	262.84 /m	104
		4105.00	Mortar Type "N"	0.73 cuyd	89	158	337.86 /cuyd	247
		4110.01	Grout Fill 3000 psi,1/2" Gravl	0.44 cuyd	124	85	494.86 /cuyd	218
		4110.01	Grout Single Door Frame	3.00 each	191	61	88.70 /each	266
		4110.01	Grout Double Door Frame	1.00 each	85	29	120.01 /each	120
		4157.00	Re-Bar #5 & #6	100.13 lbs	202	107	3.09 /lbs	309
		4158.00	Horiz Wall Reinf 6" Hot Dippd	0.21 mlf	93	36	615.80 /mlf	129
		4221.20	Blk 6" Stand Face Reg Wt - Infill	363.00 each	6,587	862	20.52 /each	7,449
		4221.50	Lintel 6" Stand Face Lt Wt	34.00 each	79	44	3.63 /each	123
		5510.35	Angle Bolted To Masonry	143.00 lb	505	430	6.74 /lb	964
		6113.40	Rough Bucks 2 x 6 PT Doors	71.00 lnft	178	80	3.63 /lnft	258
		7910.01	Polysulfide Sealant 1/4" Interior	71.00 lnft	666	16	9.60 /lnft	682
		8110.01	H.M. Frame 18ga Interior Single	3.00 each	297	518	271.64 /each	815
		8110.01	H.M. Frame 18ga Interior Double	1.00 each	124	227	350.92 /each	351
		8210.01	Door M Core 3-0 x 7-0 Vision	5.00 each	651	2,128	555.75 /each	2,779
		8710.01	Finishing Hardware Int Budget w Closure	5.00 each	678	3,989	933.29 /each	4,666
		9920.01	Paint Wd Door & Metal Frame	5.00 each	351	71	84.43 /each	422
		9920.01	Paint Int CMU Spray p+2ct	590.00 sqft	556	165	1.22 /sqft	721
			2I		***11,988***	***9,207***		***21,471***
			2 BUILDING CODE		**12,357**	**9,278**		**21,915**
3 EXTERIOR								
	3A							
		2071.01	General Disposal	50.20 cuyd	1,034	-	27.16 /cuyd	1,363
		2084.01	Remove Metal Windows	5,426.00 sqft	16,982	-	3.13 /sqft	16,982
		4156.00	Flash Head Lead Ct. Cop 5 oz.	553.00 sqft	2,528	2,542	9.17 /sqft	5,070
		4156.00	Flash Sill Lead Ct. Cop 5 oz.	550.00 sqft	2,292	2,375	8.49 /sqft	4,667
		6113.40	Rough Bucks 2 x 6 PT Windows	1,549.00 lnft	5,886	1,749	4.93 /lnft	7,635
		7910.01	Backer Rod ½"	1,549.00 lnft	4,694	142	3.12 /lnft	4,836
		7910.01	Polyurethane Sealant 1/2"	3,098.00 lnft	29,503	1,540	10.02 /lnft	31,044
		8520.01	Custom Proj 4" .125 w Ins Gl Kynar	5,426.00 sqft	61,140	282,585	63.35 /sqft	343,725
			3A		***124,059***	***290,932***		***415,321***
	3B							
		2071.01	General Disposal	50.20 cuyd	1,034	-	27.16 /cuyd	1,363
		2084.01	Remove Window Treatment	5,426.00 sqft	2,613	-	0.48 /sqft	2,613
		12520.01	Vinyl Heavy Wt	5,426.00 sqft	5,885	17,506	4.31 /sqft	23,392
			3B		***9,531***	***17,506***		***27,368***
	3C							
		8565.00	Window Screens/Wicket (Aluminum)	504.00 sqft	949	3,758	9.34 /sqft	4,707
			3C		***949***	***3,758***		***4,707***
	3E							
		2060.00	Small Building Temp	45,312.00 cuft	10,602	-	0.36 /cuft	16,370
		2060.00	Disposal Building	295.30 cuyd	2,580	-	11.88 /cuyd	3,507
		2075.00	Remove Conc Walls 8"	832.00 sqft	13,881	-	18.25 /sqft	15,187
			3E		***27,063***			***35,064***
	3P							
		4520.01	ReGrout Stone Hard Mortar	57.00 sqft	436	55	8.61 /sqft	491
			3P		***436***	***55***		***491***
	3Q							
		9910.01	Scrape & Prep Ext Misc Surfaces Lintels	1,095.00 sqft	1,782	-	1.63 /sqft	1,782
		9910.01	Paint Ext Misc Exposed Metal Lintels	1,095.00 sqft	2,294	334	2.40 /sqft	2,628
			3Q		***4,076***	***334***		***4,410***
	3R							
		2071.01	General Disposal	52.90 cuyd	1,089	-	27.16 /cuyd	1,437

Location	Bid Item	Phase	Description	Takeoff Quantity	Labor Amount	Material Amount	Total Cost/Unit	Total Amount
	3R							
		2078.00	Remove Wall Sheathing	2,856.00 sqft	1,834	-	0.64 /sqft	1,834
		2079.00	Remove Aluminum Siding Verticle	2,856.00 sqft	4,584	-	1.61 /sqft	4,584
		6116.00	Wall Sheath 1/2" Cdx Plywood	2,856.00 sqft	3,706	1,980	1.99 /sqft	5,685
		7211.00	Insul Fibrgls 6" Foil 1 side	2,856.00 sqft	2,065	2,279	1.52 /sqft	4,344
		7420.01	Siding Steel Zinc Alloy 22 ga	2,856.00 sqft	12,570	11,210	8.33 /sqft	23,779
			3R		***25,847***	***15,469***		***41,664***
			3 EXTERIOR		**191,961**	**328,054**		**529,023**
4 HAZARDOUS MAT								
	4D							
		2073.00	Remove Vinyl Asbestos Tile	34,789.00 sqft	80,280	-	2.31 /sqft	80,280
		2073.00	Vacuum Cleaner 16 gal	2.00 each	-	2,152	1,075.89 /each	2,152
		2073.00	Final Cleaning	34,789.00 sqft	8,920	-	0.26 /sqft	8,920
		2073.00	Testing	6.00 day	-	-	462.14 /day	2,773
		2073.00	Collect & Bulk Mat'l Bulk 3cf bags	3,149.00 bags	19,647	3,240	7.27 /bags	22,887
		2073.00	Cart Bags	3,149.00 bags	10,765	-	3.42 /bags	10,765
		2073.00	Disposal Minimum	323.00 cuyd	-	-	56.75 /cuyd	18,331
		2088.01	Shotblast Floor	34,789.00 sqft	30,700	-	1.39 /sqft	48,359
		3326.00	Leveling Compound	34,789.00 sqft	132,908	65,424	6.52 /sqft	226,821
		9660.01	Floor Vinyl Composition Tile 1/8"	34,789.00 sqft	37,036	64,178	2.91 /sqft	101,214
		9660.01	Floor Resil Base 4"	5,928.00 lnft	8,606	4,731	2.25 /lnft	13,337
			4D		***328,862***	***139,724***		***535,838***
	4E							
		2073.00	Remove Vinyl Asbestos Tile	2,624.00 sqft	6,055	-	2.31 /sqft	6,055
		2073.00	Vacuum Cleaner 16 gal	1.00 each	-	1,076	1,075.89 /each	1,076
		2073.00	Final Cleaning	2,624.00 sqft	673	-	0.26 /sqft	673
		2073.00	Testing	1.00 day	-	-	462.13 /day	462
		2073.00	Collect & Bulk Mat'l Bulk 3cf bags	219.00 bags	1,366	225	7.27 /bags	1,592
		2073.00	Cart Bags	219.00 bags	749	-	3.42 /bags	749
		2073.00	Disposal Minimum	49.00 cuyd	-	-	56.75 /cuyd	2,781
		2088.01	Remove Carpet & Pad	2,624.00 sqft	1,685	-	0.64 /sqft	1,685
			4E		***10,528***	***1,301***		***15,072***
	4F							
		2073.00	Remove Asbestos Ceil	1,746.00 sqft	4,477	-	2.56 /sqft	4,477
		2073.00	Final Cleaning	1,746.00 sqft	448	-	0.26 /sqft	448
		2073.00	Testing	1.00 day	-	-	462.14 /day	462
		2073.00	Collect & Bulk Mat'l Bulk 3cf bags	146.00 bags	911	150	7.27 /bags	1,061
		2073.00	Cart Bags	146.00 bags	499	-	3.42 /bags	499
		2073.00	Disposal Minimum	16.00 cuyd	-	-	56.75 /cuyd	908
			4F		***6,335***	***150***		***7,855***
			4 HAZARDOUS MAT		**345,724**	**141,176**		**558,765**
5 HC ACCESS								
	5A							
		2071.01	General Disposal	3.30 cuyd	68	-	27.16 /cuyd	90
		2076.00	Cut Out Opng 4" CMU	28.00 sqft	755	-	29.34 /sqft	821
		2076.00	Sawcut 6" CMU	32.00 lnft	905	-	46.47 /lnft	1,487
		2076.00	Tooth Jambs 1 Wythe	28.00 lnft	865	-	30.88 /lnft	865
		2076.00	Remove CMU 6"	72.00 sqft	262	-	3.97 /sqft	285
		2084.01	Remove Door	19.00 each	610	-	32.10 /each	610
		2084.01	Remove Door & Frame Int Single	8.00 each	899	-	126.93 /each	1,015
		2088.01	Flash Patch @ Wall Removal	6.00 sqft	14	13	4.41 /sqft	26
		4050.15	Concrete Block	0.10 m	-	-	262.70 /m	25
		4105.00	Mortar Type "N"	0.18 cuyd	22	39	337.89 /cuyd	61
		4110.01	Grout Double Door Frame	4.00 each	342	114	120.22 /each	481
		4158.00	Horiz Wall Reinf 6" Hot Dippd	0.10 mlf	44	17	615.40 /mlf	62
		4221.20	Blk 6" Stand Face Reg Wt - Infill	96.00 each	1,742	228	20.52 /each	1,970
		6113.40	Rough Bucks 2 x 6 PT Doors	68.00 lnft	170	77	3.63 /lnft	247
		7910.01	Polysulfide Sealant 1/4" Interior	68.00 lnft	638	15	9.60 /lnft	653
		8110.01	H.M. Frame 18ga Interior Single	4.00 each	396	691	271.64 /each	1,087
		8210.01	Rehang Door	17.00 each	2,214	0	130.22 /each	2,214
		8210.01	Door M Core 3-0 x 7-0 Vision	4.00 each	521	1,702	555.75 /each	2,223
		8710.01	Finishing Hardware Int Budget w Closure	4.00 each	542	3,191	933.29 /each	3,733
		9210.01	Plaster Patch @ Wall Removal	24.00 sqft	399	43	18.81 /sqft	451
		9210.01	Plaster Patch Ceiling @ Wall Removal	6.00 sqft	33	10	7.17 /sqft	43
		9920.01	Paint Wd Door & Metal Frame	4.00 each	281	57	84.43 /each	338
			5A		***11,721***	***6,196***		***18,787***
	5B							
		2071.01	General Disposal	36.00 cuyd	741	-	27.16 /cuyd	978
		2080.01	Remove Casework	162.00 lnft	845	-	5.22 /lnft	845
		6113.20	Blocking 2 x 6 R.L.	162.00 lnft	556	110	4.11 /lnft	666
		12350.00	School Casework Base & Top	162.00 lnft	16,306	39,715	345.81 /lnft	56,021

Location	Bid Item	Phase	Description	Takeoff Quantity	Labor Amount	Material Amount	Total Cost/Unit	Total Amount
					18,448	***39,825***		***58,510***
	5C							
		2071.01	General Disposal	2.70 cuyd	56	-	27.16 /cuyd	73
		2080.01	Remove Casework	12.00 lnft	63	-	5.22 /lnft	63
		6113.20	Blocking 2 x 6 R.L.	12.00 lnft	41	8	4.11 /lnft	49
		12620.00	Library Charge Desk	12.00 lnft	1,240	3,963	433.57 /lnft	5,203
			5C		***1,399***	***3,971***		***5,388***
	5CC							
		2071.01	General Disposal	1.40 cuyd	29	-	26.94 /cuyd	38
		2075.00	Remove Stair 4'	5.00 risr	223	-	48.44 /risr	242
		2077.00	Remove Steel Rail	20.00 lnft	201	-	10.03 /lnft	201
		3136.00	Stair Forms	88.00 sqft	1,564	360	21.87 /sqft	1,925
		3215.10	Step-Stair Rebar #5	0.01 ton	24	23	4,728.00 /ton	47
		3228.00	Wiremesh @ Steps 6x6 6/6	0.50 sqs	36	25	122.02 /sqs	61
		3314.00	Stair/Step Conc 4000 psi	2.40 cuyd	85	325	177.64 /cuyd	426
		3375.00	Cure Conc w/burlap Ext Stair	0.50 sqs	13	6	37.42 /sqs	19
		3380.01	Stair Finish	50.00 sqft	135	0	2.71 /sqft	136
		3380.01	Rub Risers	25.00 lnft	102	2	4.14 /lnft	103
		5510.80	Stair Railing Steel 1-1/2" 2 pipe	20.00 lnft	506	804	66.71 /lnft	1,334
		9920.01	Paint Int Pipe Rails	40.00 lnft	51	9	1.50 /lnft	60
			5CC		***2,968***	***1,554***		***4,592***
	5D							
		2071.01	General Disposal	0.70 cuyd	14	-	27.16 /cuyd	19
		2088.60	Remove Drinking Fountain	5.00 each	818	-	163.69 /each	818
			5D		***833***			***837***
	5E							
		2084.50	Remove TV	1.00 each	60	-	60.19 /each	60
			5E		***60***			***60***
	5F							
		2071.01	General Disposal	0.20 cuyd	4	-	27.15 /cuyd	5
		2077.00	Remove Steel Rail	16.00 lnft	161	-	10.03 /lnft	161
		5510.80	Stair Railing Steel 1-1/2" 2 pipe	9.00 lnft	228	362	66.75 /lnft	601
		5510.80	Stair Railing Galv 1-1/2" 2 pipe	7.00 lnft	177	385	81.62 /lnft	571
		9920.01	Paint Int Pipe Rails	32.00 lnft	41	7	1.50 /lnft	48
			5F		***610***	***754***		***1,386***
	5G							
		2071.01	General Disposal	5.80 cuyd	119	-	27.16 /cuyd	158
		2084.50	Remove Toilet Partitions	11.00 each	883	-	80.25 /each	883
		2084.50	Remove Urinal Screen	1.00 each	56	-	56.18 /each	56
		2084.50	Remove Toilet Accessories	45.00 each	451	-	10.03 /each	451
		6113.20	Block Toilet Partition	14.00 each	421	167	42.04 /each	589
		6113.20	Block H.C. Toilet Partition	4.00 each	181	59	59.93 /each	240
		6113.20	Block Misc Toilet Accessories	87.00 each	1,573	437	23.09 /each	2,009
		10160.02	Toilet Partition Reg Flr Mtd	7.00 each	1,483	10,154	1,662.48 /each	11,637
		10160.02	Toilet Partition HC Flr Mtd	4.00 each	847	6,681	1,882.23 /each	7,529
		10160.02	Urinal Screens Wall Hung	7.00 each	1,038	3,254	613.20 /each	4,292
		10800.01	Grab Bar 1-1/4" S.S. 36"	16.00 each	578	623	75.09 /each	1,201
		10800.01	Mirror 18" x 30" S.S.	10.00 each	470	802	127.22 /each	1,272
		10800.01	Sanitary Napkin Dispenser Recessed	2.00 each	96	2,070	1,083.42 /each	2,167
		10800.01	Clothes Hook Single	11.00 each	221	211	39.25 /each	432
		10800.01	Soap Dispenser	10.00 each	723	2,070	279.36 /each	2,794
		10800.01	Stainless Steel Shelf	15.00 lnft	247	571	54.49 /lnft	817
		10800.01	Toilet Tissue Disp Dbl	15.00 each	451	413	57.60 /each	864
		10800.01	Towel Dispenser Surface Mtd	4.00 each	181	215	98.99 /each	396
		10800.01	Towel Disp/Waste Recpt	4.00 each	578	2,708	821.65 /each	3,287
			5G		***10,599***	***30,436***		***41,074***
	5H							
		2071.01	General Disposal	54.10 cuyd	1,114	-	27.16 /cuyd	1,469
		2075.00	Saw Concrete Slab to 6"	206.00 lnft	1,123	-	7.56 /lnft	1,557
		2075.00	Chip out Slab	178.00 sqft	2,200	16	14.11 /sqft	2,512
		2076.00	Remove CMU 6"	1,596.00 sqft	5,817	-	3.97 /sqft	6,328
		2084.50	Remove Toilet Partitions	7.00 each	562	-	80.25 /each	562
		2084.50	Remove Urinal Screen	1.00 each	56	-	56.18 /each	56
		2084.50	Remove Toilet Accessories	47.00 each	471	-	10.03 /each	471
		2088.01	Remove Ceramic Tile Floor	640.00 sqft	1,181	-	1.85 /sqft	1,181
		2088.01	Flash Patch @ Wall Removal	133.00 sqft	306	280	4.41 /sqft	587
		2088.50	Remove Plaster Ceiling Metal Lath	640.00 sqft	1,438	-	2.25 /sqft	1,438
		2088.60	Remove Sink	11.00 each	1,351	-	122.80 /each	1,351
		2088.60	Remove Water Closet	10.00 each	1,404	-	140.36 /each	1,404
		2088.60	Remove Urinal	4.00 each	982	-	245.60 /each	982
		3310.01	Patch Conc. Slab Trench etc.	206.00 sqft	1,116	2,434	17.23 /sqft	3,550
		4050.10	Interior Scaffold	1,596.00 sqft	1,774	669	1.77 /sqft	2,823
		4050.15	Concrete Block	1.47 m	-	-	262.85 /m	386
		4105.00	Mortar Type "N"	2.73 cuyd	331	591	337.85 /cuyd	922

Location	Bid Item	Phase	Description	Takeoff Quantity	Labor Amount	Material Amount	Total Cost/Unit	Total Amount
	5H							
		4110.01	Grout Fill 3000 psi,1/2" Gravl	1.28 cuyd	360	246	494.43 /cuyd	633
		4110.01	Grout Single Door Frame	7.00 each	445	143	88.69 /each	621
		4157.00	Re-Bar #5 & #6	287.87 lbs	582	307	3.09 /lbs	889
		4158.00	Horiz Wall Reinf 6" Hot Dippd	1.10 mlf	489	188	615.38 /mlf	677
		4221.20	Blk 6" Standard Face Reg Wt	1,355.00 each	16,563	3,043	14.47 /each	19,606
		4221.50	Lintel 6" Stand Face Reg Wt	118.00 each	2,192	775	26.59 /each	3,138
		5510.35	Angle Bolted To Masonry	486.00 lb	1,717	1,462	6.74 /lb	3,275
		6113.20	Block Toilet Partition	7.00 each	211	84	42.04 /each	294
		6113.20	Block H.C. Toilet Partition	4.00 each	181	59	59.93 /each	240
		6113.20	Block Misc Toilet Accessories	78.00 each	1,410	391	23.09 /each	1,801
		6113.40	Rough Bucks 2 x 6 Doors	129.00 lnft	323	87	3.18 /lnft	410
		7910.01	Polysulfide Sealant 1/4" Interior	129.00 lnft	1,210	29	9.60 /lnft	1,239
		8110.01	H.M. Frame 18ga Interior Single	7.00 each	692	1,209	271.64 /each	1,902
		8210.01	Door M Core 3-0 x 7-0 Louver	7.00 each	965	3,486	635.84 /each	4,451
		8710.01	Finishing Hardware Int Budget w Closure	7.00 each	949	5,584	933.29 /each	6,533
		9210.01	Plaster Patch @ Wall Removal	168.00 sqft	2,796	298	18.81 /sqft	3,160
		9210.01	Plaster Patch Ceiling @ Wall Removal	133.00 sqft	723	212	7.17 /sqft	953
		9253.30	GWB 5/8" Water Resistant Clgs	640.00 sqft	593	277	1.36 /sqft	870
		9254.00	Labor GWB Ceiling Finish	640.00 sqft	713	49	1.19 /sqft	761
		9310.01	Ceramic Tile Floor Grade 2	640.00 sqft	8,912	3,885	20.00 /sqft	12,797
		9310.01	Ceramic Trim: Cove Base	266.00 lnft	6,813	1,159	29.97 /lnft	7,972
		9510.10	Susp Clg 1-1/2" Channel	640.00 sqft	2,148	1,000	4.92 /sqft	3,148
		9920.01	Paint Wd Door & Metal Frame	7.00 each	491	100	84.43 /each	591
		9920.01	Epoxy Paint GDW Clg	640.00 sqft	1,480	504	3.10 /sqft	1,984
		9920.01	Paint Int CMU Spray p+2ct	1,183.00 sqft	1,114	331	1.22 /sqft	1,445
		9920.01	Epoxy Paint Int CMU	1,183.00 sqft	2,736	992	3.15 /sqft	3,727
		9920.01	Epoxy Paint Exist Int CMU	2,660.00 sqft	3,873	1,487	2.02 /sqft	5,360
		10160.02	Toilet Partition Reg Flr Mtd	3.00 each	636	4,352	1,662.48 /each	4,987
		10160.02	Toilet Partition HC Flr Mtd	4.00 each	847	6,681	1,882.23 /each	7,529
		10160.02	Urinal Screens Wall Hung	4.00 each	593	1,860	613.20 /each	2,453
		10800.01	Grab Bar 1-1/4" S.S. 36"	14.00 each	506	545	75.09 /each	1,051
		10800.01	Mirror 18" x 30" S.S.	11.00 each	517	882	127.22 /each	1,399
		10800.01	Sanitary Napkin Dispenser Recessed	2.00 each	96	2,070	1,083.42 /each	2,167
		10800.01	Clothes Hook Single	7.00 each	140	134	39.24 /each	275
		10800.01	Soap Dispenser	11.00 each	795	2,278	279.36 /each	3,073
		10800.01	Stainless Steel Shelf	17.00 lnft	280	647	54.49 /lnft	926
		10800.01	Toilet Tissue Disp Dbl	10.00 each	301	275	57.60 /each	576
		10800.01	Towel Dispenser Surface Mtd	3.00 each	136	161	98.99 /each	297
		10800.01	Towel Disp/Waste Recpt	4.00 each	578	2,708	821.65 /each	3,287
			5H		***87,333***	***53,969***		***144,076***
	5K							
		2071.01	General Disposal	2.20 cuyd	45	-	27.16 /cuyd	60
		2071.01	Shore - Screw Jack	5.00 each	5,319	342	1,196.45 /each	5,982
		2076.00	Cut Out Opng 6" CMU	35.00 sqft	998	-	31.01 /sqft	1,085
		2076.00	Cut Out Brick & Block	14.00 sqft	805	-	62.55 /sqft	876
		2076.00	Sawcut 6" CMU	33.00 lnft	933	-	46.47 /lnft	1,534
		2076.00	Sawcut 16" CMU	16.00 lnft	1,207	-	123.93 /lnft	1,983
		2076.00	Tooth Jambs 1 Wythe	28.00 lnft	865	-	30.88 /lnft	865
		2076.00	Tooth Jambs 2 Wythes	14.00 lnft	863	-	61.61 /lnft	863
		2084.01	Remove Door & Frame Int Single	2.00 each	225	-	127.47 /each	255
		2084.01	Remove Door & Frame Ext Single	2.00 each	257	-	145.68 /each	291
		4110.01	Grout Single Door Frame	5.00 each	318	102	88.70 /each	443
		6113.40	Rough Bucks 2 x 6 Doors	51.00 lnft	128	35	3.18 /lnft	162
		6113.40	Rough Bucks 2 x 6 PT Doors	34.00 lnft	85	38	3.63 /lnft	123
		7910.01	Backer Rod ½"	34.00 lnft	103	3	3.12 /lnft	106
		7910.01	Polysulfide Sealant 1/4" Interior	51.00 lnft	478	11	9.60 /lnft	490
		7910.01	Polyurethane Sealant 1/2"	68.00 lnft	648	34	10.02 /lnft	681
		8110.01	H.M. Frame 16ga Galv Single	2.00 each	198	412	304.67 /each	609
		8110.01	H.M. Frame 18ga Interior Single	3.00 each	297	518	271.64 /each	815
		8110.01	H.M. Door Ins 16ga Galv 3-0 x 7-0 Vision	2.00 each	199	1,179	688.74 /each	1,377
		8210.01	Door M Core 3-0 x 7-0 Vision	3.00 each	391	1,277	555.75 /each	1,667
		8710.01	Finishing Hardware Ext Budget	2.00 each	452	2,406	1,428.88 /each	2,858
		8710.01	Finishing Hardware Int Budget w Closure	3.00 each	407	2,393	933.29 /each	2,800
		9910.01	Paint Ext Door & Frame	2.00 each	154	28	91.31 /each	183
		9920.01	Paint Wd Door & Metal Frame	3.00 each	210	43	84.43 /each	253
			5K		***15,582***	***8,820***		***26,362***
	5L							
		2071.01	General Disposal	0.20 cuyd	4	-	27.10 /cuyd	5
		2075.00	Saw Concrete Slab to 6"	18.00 lnft	98	-	7.56 /lnft	136
		2075.00	Chip out Slab	20.00 sqft	247	2	14.11 /sqft	282
		14405.00	Lift Commercial	1.00 each	2,988	15,339	18,484.69 /each	18,485
			5L		***3,338***	***15,341***		***18,908***
	5N							
		3131.00	Ramp Forms 2 use	176.00 lnft	1,392	313	9.69 /lnft	1,705
		3225.00	Wiremesh - Ramp 6x6 6/6	2.80 sqs	193	142	119.96 /sqs	336

Location	Bid Item	Phase	Description	Takeoff Quantity	Labor Amount	Material Amount	Total Cost/Unit	Total Amount
	5N							
		3309.50	Ramp Conc 4000 psi	5.19 cuyd	239	736	197.25 /cuyd	1,024
		3375.00	Cure Conc w/burlap Ramp	2.80 sqs	72	33	37.41 /sqs	105
		3380.01	Broom/Float Finish Ramp	280.00 sqft	247	-	0.88 /sqft	247
		5510.80	Stair Railing Galv 1-1/2" 2 pipe	112.00 lnft	2,832	6,167	81.62 /lnft	9,141
		9910.01	Paint Ext Stair Hand 1 Rail	224.00 lnft	326	63	1.74 /lnft	389
			5N		***5,300***	***7,454***		***12,945***
	5Q							
		2071.01	General Disposal	1.40 cuyd	29	-	27.16 /cuyd	38
		2075.00	Remove Locker Base	39.00 lnft	663	-	20.37 /lnft	795
		2084.50	Relocate Lockers	39.00 each	4,025	-	103.20 /each	4,025
			5Q		***4,717***			***4,857***
	5R							
		2071.01	General Disposal	0.40 cuyd	8	-	26.90 /cuyd	11
		2084.50	Remove Kitchen Serve	12.00 lnft	173	-	14.45 /lnft	173
		11400.01	Serving Line	12.00 lnft	641	12,347	1,082.34 /lnft	12,988
			5R		***823***	***12,347***		***13,172***
	5T							
		2071.01	General Disposal	5.10 cuyd	105	-	27.16 /cuyd	139
		2084.01	Remove Hardware	136.00 each	6,146	-	45.19 /each	6,146
		8710.01	Finishing Hardware Ext Budget	23.00 each	5,197	27,667	1,428.88 /each	32,864
		8710.01	Finishing Hardware Int Budget w Closure	113.00 each	15,320	90,141	933.29 /each	105,461
			5T		***26,769***	***117,808***		***144,610***
	5W							
		4050.15	Concrete Block	0.11 m	-	-	262.79 /m	29
		4050.15	Brick	0.66 m	-	-	88.30 /m	58
		4105.00	Mortar Type "N"	0.61 cuyd	74	132	337.84 /cuyd	206
		4105.00	Mortar Color	18.00 lbs	-	215	11.95 /lbs	215
		4110.01	Grout Fill 3000 psi,1/2" Gravl	0.29 cuyd	82	56	494.76 /cuyd	143
		4156.00	Flash Sill Lead Ct. Cop 5 oz.	49.00 sqft	204	212	8.49 /sqft	416
		4156.10	Weepholes - Metal	25.00 each	92	28	4.80 /each	120
		4157.00	Re-Bar #5 & #6	75.10 lbs	152	80	3.09 /lbs	232
		4158.00	Horiz Wall Reinf 8" Hot Dippd	0.10 mlf	59	17	781.33 /mlf	77
		4159.00	Brick Anchors Z Ties 8"	55.00 each	87	10	1.77 /each	98
		4202.00	Standard Size Face Brick Infill	0.66 m	5,340	669	9,104.71 /m	6,009
		4220.00	Blk 8" Stand Face Reg Wt - Infill	111.00 each	2,014	326	21.08 /each	2,340
		4710.10	Clean Brick - General	0.98 sqs	281	7	293.24 /sqs	287
		7186.00	Ashphalt Ct. Troweled 1/8"	98.00 sqft	225	77	3.08 /sqft	302
		7212.00	Extruded Polystyrene 2.0"	98.00 sqft	106	171	2.83 /sqft	277
		9920.01	Paint Int CMU Spray p+2ct	98.00 sqft	92	27	1.22 /sqft	120
			5W		***8,809***	***2,026***		***10,928***
			5 HC ACCESS		**199,308**	**300,502**		**506,494**
6 FINISHES GEN								
	6A							
		2071.01	General Disposal	1.40 cuyd	29	-	27.16 /cuyd	38
		2088.50	Remove Acoust Tile	152.00 sqft	220	-	1.45 /sqft	220
		9510.50	MinFbr Tegulr Std 2x4 3/4" < 250 sf	152.00 sqft	495	517	6.66 /sqft	1,012
			6A		***744***	***517***		***1,270***
	6B							
		2071.01	General Disposal	2.40 cuyd	49	-	26.92 /cuyd	65
		2076.00	Remove Brick Veneer	200.00 sqft	1,027	-	5.80 /sqft	1,161
		4050.10	Exterior Scaffold	200.00 sqft	296	84	2.25 /sqft	449
		4105.00	Mortar Type "N"	0.70 cuyd	85	152	337.84 /cuyd	236
		4105.00	Mortar Color	56.00 lbs	-	669	11.95 /lbs	669
		4159.00	Brick Anchors Z Ties 8"	113.00 each	179	21	1.77 /each	200
		4202.00	Standard Size Face Brick Infill	1.35 m	10,922	1,369	9,104.42 /m	12,291
		4520.01	Cut & Repoint CMU Hard Mortar	68.00 lnft	703	94	14.55 /lnft	989
		4520.01	Remove CMU 8" Allow	34.00 each	2,027	-	64.85 /each	2,205
		4520.01	Patch in 8" CMU Allow	34.00 each	1,011	91	32.41 /each	1,102
		4710.10	Clean Brick - General	2.00 sqs	573	14	293.22 /sqs	586
			6B		***16,873***	***2,493***		***19,954***
	6CC							
		3328.00	Patch Concrete Wall	50.00 sqft	677	1,197	37.49 /sqft	1,874
			6CC		***677***	***1,197***		***1,874***
	6D							
		4520.01	Cut & Repoint Brick Soft Mortr	185.00 sqft	1,335	133	9.88 /sqft	1,828
			6D		***1,335***	***133***		***1,828***
	6F							
		2071.01	General Disposal	0.20 cuyd	4	-	27.15 /cuyd	5
		2079.00	Remove Soffit & Trim	20.00 sqft	90	-	4.49 /sqft	90
		7240.00	Ext Cement Bd Finish System Soffit Infill	20.00 sqft	766	72	42.98 /sqft	860

Location	Bid Item	Phase	Description	Takeoff Quantity	Labor Amount	Material Amount	Total Cost/Unit	Total Amount
	6F							
		9910.01	Paint Ext Soffit 3 ct Infill	20.00 sqft	31	3	1.67 /sqft	33
			6F		***890***	***75***		***988***
	6KK							
		9920.01	Paint Exist Int CMU Spray 2 ct	58,873.00 sqft	25,211	10,470	0.61 /sqft	35,680
			6KK		***25,211***	***10,470***		***35,680***
	6L							
		4155.00	Control Jnt Rubber 8" Wall	33.00 lnft	129	122	7.59 /lnft	250
		7910.01	Backer Rod ½"	33.00 lnft	100	3	3.12 /lnft	103
		7910.01	Polyurethane Sealant 1/2"	33.00 lnft	314	16	10.02 /lnft	331
		7910.01	Rake Out Masonry Jt. Filler	33.00 lnft	97	7	4.97 /lnft	164
			6L		***640***	***148***		***848***
	6M							
		2071.01	General Disposal	9.60 cuyd	198	-	27.16 /cuyd	261
		2084.01	Remove Window Treatment	1,040.00 sqft	501	-	0.48 /sqft	501
		12510.01	Horiz 1" Alum Avg	1,040.00 sqft	1,504	7,530	8.69 /sqft	9,034
			6M		***2,202***	***7,530***		***9,795***
	6MM							
		8110.01	H.M. Frame Repair Allow	2.00 each	396	173	284.16 /each	568
			6MM		***396***	***173***		***568***
	6N							
		2071.01	General Disposal	0.20 cuyd	4	-	27.00 /cuyd	5
		2084.50	Remove Basketball Backstops	2.00 each	1,284	-	642.01 /each	1,284
		11490.01	Basketball Backboard Clg Swing	2.00 each	5,163	8,922	7,042.46 /each	14,085
			6N		***6,451***	***8,922***		***15,374***
	6P							
		2071.01	General Disposal	14.20 cuyd	292	-	26.92 /cuyd	382
		2088.50	Rem. Acoust Tile & Grid	1,534.00 sqft	1,847	-	1.20 /sqft	1,847
		9510.50	Mylar Faced Std 2x4 3/4" 250-500 sf	1,534.00 sqft	2,120	6,061	5.33 /sqft	8,181
			6P		***4,259***	***6,061***		***10,410***
	6Q							
		2071.01	General Disposal	0.30 cuyd	6	-	26.93 /cuyd	8
		2088.01	Remove Expansion Joint	16.00 lnft	1,284	-	80.25 /lnft	1,284
		5810.01	Embedded Floor Joint 2" Alum	16.00 lnft	329	393	45.12 /lnft	722
			6Q		***1,619***	***393***		***2,014***
	6QQ							
		8520.01	Fasten Window Hardware Replacement	40.00 sqft	91	36	3.19 /sqft	127
			6QQ		***91***	***36***		***127***
	6R							
		9210.01	Plaster Patch Ceiling	20.00 sqft	129	32	8.21 /sqft	164
		9920.01	Paint GDW Infill Roller p + 2ct	20.00 sqft	19	4	1.15 /sqft	23
			6R		***148***	***36***		***187***
	6S							
		9210.01	Plaster Patch @ Case Removal	84.00 sqft	1,398	149	18.81 /sqft	1,580
			6S		***1,398***	***149***		***1,580***
	6U							
		9910.01	Paint Exist Metal Panel 2 ct	228.00 sqft	93	38	0.57 /sqft	131
			6U		***93***	***38***		***131***
	6YY							
		2071.01	General Disposal	0.40 cuyd	8	-	26.90 /cuyd	11
		2077.00	Remove Steel Floor	20.00 sqft	162	-	8.81 /sqft	176
		3230.01	Wiremesh-Corruform 6x6 6/6 Infill	0.20 sqs	21	11	163.35 /sqs	33
		3319.00	Conc @ Curruform 4000 psi Infill	0.24 cuyd	15	34	215.08 /cuyd	52
		3375.00	Cure Conc w/burlap Elv. Slab Infill	0.20 sqs	8	2	54.50 /sqs	11
		3380.01	Broom/Float Finish Elv. Slab Infill	20.00 sqft	27	-	1.36 /sqft	27
		5312.10	Slab Form 1-1/2" 20 ga Galv infill	20.00 sqft	26	59	4.32 /sqft	86
			6YY		***267***	***107***		***396***
	6ZZ							
		2071.01	General Disposal	0.20 cuyd	4	-	26.95 /cuyd	5
		2084.01	Remove Int Bi-Fold Door	1.00 each	46	-	45.82 /each	46
		8350.01	Door Bifold	1.00 each	135	151	286.01 /each	286
		8710.01	Residential Hardware Int Budget	1.00 set	46	201	247.04 /set	247
		9920.01	Paint Wd Door & Frame	1.00 each	65	15	79.78 /each	80
			6ZZ		***296***	***367***		***664***
			6 FINISHES GEN		**63,591**	**38,845**		**103,689**

Estimate Totals

Estimate Totals

Labor	814,026		9,223.716	hrs
Material	822,666			
Subcontract	3,697			
Equipment	63,373		1,419.281	hrs
Other	22,020			
	1,725,782	**1,725,782**		
	Total	***1,725,782***		

HASTINGS ELEMENTARY SCHOOL RENOVATION
STUDY ESTIMATE - 11-25-08
LEXINGTON, MA

Project name Hastings E.S.

Lexington
MA

Architect **TDPC**

Estimator *Essential Estimating*

Location	Labor Amount	Material Amount	Sub Amount	Equip Amount	Total Amount
1 LIFE SAFETY	**1,381**	**5,094**		**19**	**6,494**
2 BUILDING CODE	**6,281**	**8,179**		**166**	**14,626**
3 EXTERIOR	**347,701**	**452,507**		**19,351**	**819,559**
4 HAZARDOUS MAT	**198,164**	**119,574**	**1,387**	**25,462**	**354,577**
5 HC ACCESS	**136,301**	**275,016**		**3,673**	**414,990**
6 FINISHES GEN	**167,151**	**37,872**		**22,234**	**227,256**

Estimate Totals

Labor	856,978		9,163.423	hrs
Material	898,242			
Subcontract	1,387			
Equipment	70,905		2,319.138	hrs
Other	9,991			
	1,837,503	**1,837,503**		
	Total	***1,837,503***		

Location	Bid Item	Description	Labor Amount	Material Amount	Sub Amount	Equip Amount	Total Amount
1 LIFE SAFETY							
	1D		*1,085*	*4,813*			*5,897*
	1E		*296*	*282*		*19*	*597*
		1 LIFE SAFETY	**1,381**	**5,094**		**19**	**6,494**
2 BUILDING CODE							
	2A		*176*	*301*			*477*
	2I		*4,467*	*3,065*		*166*	*7,699*
	3F		*1,637*	*4,813*			*6,450*
		2 BUILDING CODE	**6,281**	**8,179**		**166**	**14,626**
3 EXTERIOR							
	3A		*211,542*	*406,656*		*480*	*618,678*
	3B		*12,219*	*22,441*		*423*	*35,083*
	3C		*181*	*716*			*897*
	3E		*49,352*			*16,499*	*65,851*
	3L		*67,553*	*21,955*		*1,948*	*91,456*
	3P		*4,077*	*512*			*4,589*
	3Q		*2,778*	*227*			*3,005*
		3 EXTERIOR	**347,701**	**452,507**		**19,351**	**819,559**
4 HAZARDOUS MAT							
	4B		*65*	*3*			*68*
	4C		*20,275*	*43,766*		*251*	*64,293*
	4D		*177,824*	*75,804*	*1,387*	*25,211*	*290,217*
		4 HAZARDOUS MAT	**198,164**	**119,574**	**1,387**	**25,462**	**354,577**
5 HC ACCESS							
	5A		*8,857*	*463*		*927*	*10,247*
	5B		*2,419*	*4,426*		*26*	*6,871*
	5D		*1,167*			*7*	*1,173*
	5E		*241*				*241*
	5F		*6,811*	*7,734*		*260*	*14,805*
	5G		*17,480*	*56,451*		*51*	*73,982*
	5H		*54,961*	*27,792*		*1,757*	*84,510*
	5L		*6,920*	*30,689*		*503*	*38,113*
	5N		*3,928*	*2,795*		*90*	*6,813*
	5Q		*251*			*10*	*261*
	5R		*326*			*3*	*329*
	5T		*32,850*	*144,641*		*39*	*177,530*
	5V		*91*	*25*			*116*
		5 HC ACCESS	**136,301**	**275,016**		**3,673**	**414,990**
6 FINISHES GEN							
	6A		*5,208*	*3,620*		*65*	*8,893*
	6AA		*615*	*65*			*680*
	6B		*109,587*	*2,854*		*21,493*	*133,933*
	6BB		*828*	*1,838*		*4*	*2,670*
	6CC		*135*	*239*			*375*
	6D		*1,372*	*137*		*369*	*1,877*
	6DD		*72*	*22*			*94*
	6E		*4,382*	*2,353*		*11*	*6,745*
	6GG		*1,626*	*2,874*			*4,499*
	6HH		*820*				*820*
	6JJ		*115*	*507*		*6*	*628*
	6KK		*22,519*	*9,351*			*31,870*
	6MM		*198*	*86*			*284*
	6NN		*663*	*459*		*4*	*1,126*
	6P		*2,943*	*4,189*		*62*	*7,194*
	6PP		*139*	*108*			*247*
	6RR		*3,190*	*4,592*		*18*	*7,800*
	6SS		*1,055*	*76*			*1,131*

Location	Bid Item	Description	Labor Amount	Material Amount	Sub Amount	Equip Amount	Total Amount
			1,132	*2,016*		*25*	*3,173*
	6W		*2,244*	*126*			*2,370*
	6X		*1,326*	*691*		*15*	*2,032*
	6Y		*798*	*926*		*8*	*1,733*
	6Z		*6,185*	*742*		*155*	*7,081*
		6 FINISHES GEN	**167,151**	**37,872**		**22,234**	**227,256**

Estimate Totals

Labor	856,978		9,163.423	hrs
Material	898,241			
Subcontract	1,387			
Equipment	70,905		2,319.138	hrs
Other	9,991			
	1,837,502	**1,837,502**		
	Total	***1,837,502***		

Location	Bid Item	Phase	Description	Takeoff Quantity	Labor Amount	Material Amount	Total Cost/Unit	Total Amount
1 LIFE SAFETY								
	1D							
		2084.01	Remove Hardware	4.00 each	181	-	45.20 /each	181
		8710.01	Finishing Hardware Ext Budget	4.00 each	904	4,813	1,429.15 /each	5,717
			1D		***1,085***	***4,813***		***5,897***
	1E							
		7145.00	Cement W.P. 1 ct 1/8"	105.00 sqft	296	282	5.68 /sqft	597
			1E		***296***	***282***		***597***
			1 LIFE SAFETY		**1,381**	**5,094**		**6,494**
2 BUILDING CODE								
	2A							
		2084.01	Remove Hardware	1.00 each	45	-	45.20 /each	45
		8710.01	Door Closers	1.00 each	131	301	431.93 /each	432
			2A		***176***	***301***		***477***
	2I							
		2071.01	General Disposal	2.60 cuyd	54	-	26.93 /cuyd	70
		2088.01	Flash Patch @ Wall Removal	22.00 sqft	51	46	4.41 /sqft	97
		2088.21	Remove Stud GWB Partition	220.00 sqft	825	-	3.75 /sqft	825
		4050.10	Interior Scaffold	220.00 sqft	245	92	1.77 /sqft	389
		4050.15	Concrete Block	0.20 m	-	-	243.90 /m	49
		4105.00	Mortar Type "N"	0.36 cuyd	44	78	337.92 /cuyd	122
		4110.01	Grout Fill 3000 psi,1/2" Gravl	0.78 cuyd	220	150	494.53 /cuyd	386
		4110.01	Grout Single Door Frame	1.00 each	64	20	88.70 /each	89
		4157.00	Re-Bar #5 & #6	150.00 lbs	303	160	3.09 /lbs	463
		4158.00	Horiz Wall Reinf 6" Hot Dippd	0.16 mlf	71	27	615.44 /mlf	98
		4221.20	Blk 6" 2 hr Stand Face Reg Wt	78.00 each	1,013	221	15.81 /each	1,233
		4221.50	Lintel 6" Stand Face Lt Wt	18.00 each	42	24	3.63 /each	65
		5510.35	Angle Bolted To Masonry	86.00 lb	304	259	6.74 /lb	580
		6113.40	Rough Bucks 2 x 6 PT Doors	17.00 lnft	43	19	3.63 /lnft	62
		7910.01	Polysulfide Sealant 1/4" Interior	17.00 lnft	159	4	9.60 /lnft	163
		8110.01	H.M. Frame 18ga Interior Single	1.00 each	99	173	271.69 /each	272
		8110.01	H.M. Door 18ga 3-0 x 7-0 Vision Lab	1.00 each	88	853	940.94 /each	941
		8710.01	Finishing Hardware Int Budget w Closure	1.00 each	136	798	933.46 /each	933
		9210.01	Plaster Patch @ Wall Removal	20.00 sqft	333	36	18.82 /sqft	376
		9210.01	Plaster Patch Ceiling @ Wall Removal	22.00 sqft	120	35	7.17 /sqft	158
		9920.01	Paint Metal Door & Frame	1.00 each	58	13	71.26 /each	71
		9920.01	Paint Int CMU Spray p+2ct	210.00 sqft	198	59	1.22 /sqft	257
			2I		***4,467***	***3,065***		***7,699***
	3F							
		2084.01	Remove Door	4.00 each	128	-	32.11 /each	128
		2084.01	Remove Hardware	4.00 each	181	-	45.20 /each	181
		8110.01	Re-Hang Door	4.00 each	424	0	106.05 /each	424
		8710.01	Finishing Hardware Ext Budget	4.00 each	904	4,813	1,429.15 /each	5,717
			3F		***1,637***	***4,813***		***6,450***
			2 BUILDING CODE		**6,281**	**8,179**		**14,626**
3 EXTERIOR								
	3A							
		2071.01	General Disposal	73.10 cuyd	1,505	-	27.16 /cuyd	1,986
		2084.01	Remove Metal Windows	6,954.00 sqft	21,769	-	3.13 /sqft	21,769
		2084.01	Remove Translucent Panels	936.00 sqft	2,930	-	3.13 /sqft	2,930
		4156.00	Flash Head Lead Ct. Cop 5 oz.	1,168.00 sqft	5,340	5,370	9.17 /sqft	10,710
		4156.00	Flash Sill Lead Ct. Cop 5 oz.	1,168.00 sqft	4,869	5,044	8.49 /sqft	9,913
		6015.00	Fastners & Misc	1.00 lsum	-	36	35.58 /lsum	36
		6113.40	Rough Bucks 2 x 6 PT Windows	3,152.00 lnft	11,980	3,559	4.93 /lnft	15,539
		7410.04	Translucent Panel System	936.00 sqft	15,175	26,994	45.05 /sqft	42,169
		7910.01	Backer Rod ½"	3,152.00 lnft	9,553	289	3.12 /lnft	9,842
		7910.01	Polyurethane Sealant 1/2"	6,304.00 lnft	60,047	3,135	10.02 /lnft	63,182
		8520.01	Custom Proj 4" .125 w Ins Gl Kynar	6,954.00 sqft	78,374	362,230	63.36 /sqft	440,603
			3A		***211,542***	***406,656***		***618,678***
	3B							
		2071.01	General Disposal	64.40 cuyd	1,326	-	27.16 /cuyd	1,749
		2084.01	Remove Window Treatment	6,954.00 sqft	3,349	-	0.48 /sqft	3,349
		12520.01	Vinyl Heavy Wt	6,954.00 sqft	7,544	22,441	4.31 /sqft	29,985
			3B		***12,219***	***22,441***		***35,083***
	3C							
		8565.00	Window Screens/Wicket (Aluminum)	96.00 sqft	181	716	9.34 /sqft	897
			3C		***181***	***716***		***897***
	3E							
		2060.00	Small Building Wood	100,160.00 cuft	23,441	-	0.36 /cuft	35,733
		2060.00	Disposal Building	857.00 cuyd	7,488	-	11.77 /cuyd	10,082
		2075.00	Remove Conc Walls 8"	1,104.00 sqft	18,423	-	18.15 /sqft	20,035
			3E		***49,352***			***65,851***
	3L							
		2071.01	General Disposal	27.80 cuyd	572	-	26.93 /cuyd	749
		2076.00	Remove Brick & Block Wall	751.00 sqft	7,300	-	10.55 /sqft	7,921
		4050.10	Exterior Scaffold	751.00 sqft	1,113	315	2.25 /sqft	1,687
		4050.10	Interior Scaffold	751.00 sqft	835	315	1.76 /sqft	1,322
		4050.15	Concrete Block	1.00 m	-	-	243.88 /m	244

Location	Bid Item	Phase	Description	Takeoff Quantity	Labor Amount	Material Amount	Total Cost/Unit	Total Amount
	3L							
		4050.15	Brick	4.00 m	-	-	81.94 /m	328
		4105.00	Mortar Type "N"	3.75 cuyd	455	812	337.92 /cuyd	1,267
		4105.00	Mortar Color	114.00 lbs	-	1,362	11.95 /lbs	1,362
		4110.01	Grout Fill 3000 psi,1/2" Gravl	2.71 cuyd	763	521	493.87 /cuyd	1,338
		4156.00	Flash Head Lead Ct. Cop 5 oz.	32.00 sqft	146	147	9.17 /sqft	293
		4156.00	Flash Sill Lead Ct. Cop 5 oz.	32.00 sqft	133	138	8.49 /sqft	272
		4156.00	Flash Shelf Lead Ct. Cop 5 oz.	41.00 sqft	149	170	7.77 /sqft	318
		4156.10	Weepholes - Metal	21.00 each	78	23	4.80 /each	101
		4157.00	Re-Bar #7 & #8	676.56 lb	1,074	702	2.63 /lb	1,776
		4158.00	Horiz Wall Reinf 8" Hot Dippd	0.49 mlf	296	87	781.60 /mlf	383
		4159.00	Brick Anchors Z Ties 8"	333.00 each	529	62	1.77 /each	591
		4202.00	Standard Size Face Brick Infill	3.99 m	32,288	4,046	9,106.21 /m	36,334
		4220.00	Blk 8" Stand Face Reg Wt - Infill	610.00 each	11,072	1,790	21.09 /each	12,862
		4221.45	Lintel 8" Stand Face Reg Wt	55.00 each	1,073	429	28.72 /each	1,580
		4710.10	Clean Brick - General	5.91 sqs	1,693	40	293.28 /sqs	1,733
		5510.05	Stl Angles 1000 - 2000 lbs	287.00 lb	538	419	3.34 /lb	958
		5510.35	Angle Bolted To Masonry	86.00 lb	304	259	6.74 /lb	580
		6113.40	Rough Bucks 2 x 6 PT Windows	94.00 lnft	357	106	4.93 /lnft	463
		6413.00	Window Stools (Wood)	32.00 lnft	213	241	14.20 /lnft	454
		6413.00	Apron At Stools	32.00 lnft	105	85	5.94 /lnft	190
		7186.00	Ashphalt Ct. Sprayed 2 cts.	591.00 sqft	1,297	278	2.67 /sqft	1,576
		7212.00	Extruded Polystyrene 2.0"	591.00 sqft	641	1,029	2.83 /sqft	1,670
		7910.01	Backer Rod ½"	94.00 lnft	285	9	3.12 /lnft	294
		7910.01	Polyurethane Sealant 1/2"	188.00 lnft	1,791	93	10.02 /lnft	1,884
		8520.01	Custom Proj 4" .125 w Ins Gl Kynar	160.00 sqft	1,803	8,334	63.36 /sqft	10,138
		9920.01	Paint Wood Sill	32.00 lnft	107	5	3.51 /lnft	112
		9920.01	Paint Wood Apron	32.00 lnft	96	4	3.11 /lnft	100
		9920.01	Paint Int CMU Spray p+2ct	473.00 sqft	446	132	1.22 /sqft	578
			3L		***67,553***	***21,955***		***91,456***
	3P							
		4520.01	ReGrout Stone Hard Mortar	533.00 sqft	4,077	512	8.61 /sqft	4,589
			3P		***4,077***	***512***		***4,589***
	3Q							
		9910.01	Scrape & Prep Ext Misc Surfaces Lintels	746.00 sqft	1,214	-	1.63 /sqft	1,214
		9910.01	Paint Ext Misc Exposed Metal Lintels	746.00 sqft	1,563	227	2.40 /sqft	1,791
			3Q		***2,778***	***227***		***3,005***
			3 EXTERIOR		**347,701**	**452,507**		**819,559**
4 HAZARDOUS MAT								
	4B							
		2073.00	Remove Asbestos Shelf	4.00 sqft	65	3	16.92 /sqft	68
			4B		***65***	***3***		***68***
	4C							
		2071.01	General Disposal	39.60 cuyd	815	-	26.93 /cuyd	1,066
		2080.01	Remove Casework	178.00 lnft	929	-	5.22 /lnft	929
		6113.20	Blocking 2 x 6 R.L.	178.00 lnft	611	121	4.11 /lnft	732
		12350.00	School Casework Base & Top	178.00 lnft	17,920	43,646	345.87 /lnft	61,565
			4C		***20,275***	***43,766***		***64,293***
	4D							
		2073.00	Remove Vinyl Asbestos Tile	19,002.00 sqft	43,858	-	2.31 /sqft	43,858
		2073.00	Vacuum Cleaner 16 gal	1.00 each	-	1,076	1,076.10 /each	1,076
		2073.00	Final Cleaning	19,002.00 sqft	4,873	-	0.26 /sqft	4,873
		2073.00	Testing	3.00 day	-	-	462.23 /day	1,387
		2073.00	Collect & Bulk Mat'l Bulk 3cf bags	1,584.00 bags	9,885	1,630	7.27 /bags	11,515
		2073.00	Cart Bags	1,584.00 bags	5,416	-	3.42 /bags	5,416
		2073.00	Disposal Minimum	176.00 cuyd	-	-	56.77 /cuyd	9,991
		2088.01	Shotblast Floor	19,002.00 sqft	16,772	-	1.39 /sqft	26,419
		3326.00	Leveling Compound	19,002.00 sqft	72,610	35,742	6.52 /sqft	123,915
		9660.01	Floor Vinyl Composition Tile 1/8"	19,002.00 sqft	20,234	35,061	2.91 /sqft	55,294
		9660.01	Floor Resil Base 4"	2,876.00 lnft	4,176	2,296	2.25 /lnft	6,472
			4D		***177,824***	***75,804***		***290,217***
			4 HAZARDOUS MAT		**198,164**	**119,574**		**354,577**
5 HC ACCESS								
	5A							
		2071.01	General Disposal	47.00 cuyd	968	-	27.16 /cuyd	1,277
		2076.00	Cut Out Opng 4" CMU	40.00 sqft	1,079	-	29.35 /sqft	1,174
		2076.00	Sawcut 4" CMU	40.00 lnft	754	-	30.99 /lnft	1,240
		2076.00	Tooth Jambs 1 Wythe	40.00 lnft	1,235	-	30.89 /lnft	1,235
		2084.01	Remove Door	13.00 each	417	-	32.11 /each	417
		2084.50	Remove Lockers	8.00 each	184	-	22.96 /each	184
		2088.01	Flash Patch @ Wall Removal	4.00 sqft	9	8	4.41 /sqft	18
		4050.10	Interior Scaffold	40.00 sqft	44	17	1.77 /sqft	71
		4050.15	Concrete Block	0.05 m	-	-	244.00 /m	11
		4105.00	Mortar Type "N"	0.06 cuyd	7	13	338.00 /cuyd	20
		4110.01	Grout Fill 3000 psi,1/2" Gravl	0.03 cuyd	8	6	497.30 /cuyd	15
		4157.00	Re-Bar #5 & #6	41.72 lbs	84	45	3.09 /lbs	129
		4158.00	Horiz Wall Reinf 4" Hot Dippd	0.03 mlf	13	4	568.30 /mlf	17
		4221.25	Blk 4" Standard Face Reg Wt	45.00 each	516	71	13.04 /each	587
		8210.01	Rehang Door	13.00 each	1,693		130.24 /each	1,693
		9210.01	Plaster Patch @ Wall Removal	40.00 sqft	666	71	18.83 /sqft	753
		9210.01	Plaster Patch Ceiling @ Wall Removal	4.00 sqft	22	6	7.17 /sqft	29

Location	Bid Item	Phase	Description	Takeoff Quantity	Labor Amount	Material Amount	Total Cost/Unit	Total Amount
	5A							
		9920.01	Paint Wd Door & Metal Frame & Prep	13.00 each	1,095	205	99.96 /each	1,299
		9920.01	Paint Int CMU Spray p+2ct	64.00 sqft	60	18	1.22 /sqft	78
			5A		***8,857***	***463***		***10,247***
	5B							
		2071.01	General Disposal	4.00 cuyd	82	-	27.17 /cuyd	109
		2080.01	Remove Casework	18.00 lnft	94	-	5.22 /lnft	94
		2088.60	Remove Sink	3.00 each	368	-	122.82 /each	368
		6113.20	Blocking 2 x 6 R.L.	18.00 lnft	62	12	4.11 /lnft	74
		12350.00	School Casework Base & Top	18.00 lnft	1,812	4,414	345.87 /lnft	6,226
			5B		***2,419***	***4,426***		***6,871***
	5D							
		2071.01	General Disposal	1.00 cuyd	21	-	27.16 /cuyd	27
		2088.60	Remove Drinking Fountain	7.00 each	1,146	-	163.72 /each	1,146
			5D		***1,167***			***1,173***
	5E							
		2084.50	Remove TV	4.00 each	241	-	60.20 /each	241
			5E		***241***			***241***
	5F							
		2071.01	General Disposal	1.10 cuyd	23	-	27.16 /cuyd	30
		2077.00	Remove Steel Rail	116.00 lnft	1,164	-	10.03 /lnft	1,164
		5510.80	Stair Railing Steel 1-1/2" 2 pipe	9.00 lnft	228	362	66.77 /lnft	601
		5510.80	Stair Railing Galv 1-1/2" 2 pipe	9.00 lnft	228	496	81.63 /lnft	735
		5510.80	Stair Railing Steel 1-1/2" 6 pipe	62.00 lnft	3,676	6,038	159.64 /lnft	9,897
		5510.80	Wall Rail Steel 1-1/2" 1 pipe	36.00 lnft	922	743	47.56 /lnft	1,712
		9920.01	Paint Int Pipe Rails	444.00 lnft	571	96	1.50 /lnft	666
			5F		***6,811***	***7,734***		***14,805***
	5G							
		2071.01	General Disposal	7.80 cuyd	161	-	27.16 /cuyd	212
		2084.50	Remove Toilet Partitions	14.00 each	1,124	-	80.27 /each	1,124
		2084.50	Remove Toilet Accessories	71.00 each	712	-	10.03 /each	712
		6113.20	Block Toilet Partition	24.00 each	723	287	42.05 /each	1,009
		6113.20	Block H.C. Toilet Partition	8.00 each	362	118	59.94 /each	480
		6113.20	Block Misc Toilet Accessories	138.00 each	2,495	693	23.10 /each	3,188
		10160.02	Toilet Partition Reg Flr Mtd	13.00 each	2,755	18,861	1,662.79 /each	21,616
		10160.02	Toilet Partition HC Flr Mtd	8.00 each	1,695	13,365	1,882.59 /each	15,061
		10160.02	Urinal Screens Wall Hung	11.00 each	1,632	5,115	613.31 /each	6,746
		10800.01	Grab Bar 1-1/4" S.S. 36"	16.00 each	579	623	75.10 /each	1,202
		10800.01	Mirror 18" x 30" S.S.	20.00 each	940	1,605	127.24 /each	2,545
		10800.01	Sanitary Napkin Dispenser Recessed	4.00 each	193	4,142	1,083.62 /each	4,334
		10800.01	Clothes Hook Single	19.00 each	381	365	39.25 /each	746
		10800.01	Soap Dispenser	20.00 each	1,446	4,142	279.41 /each	5,588
		10800.01	Stainless Steel Shelf	30.00 lnft	494	1,142	54.50 /lnft	1,635
		10800.01	Toilet Tissue Disp Dbl	21.00 each	632	578	57.61 /each	1,210
		10800.01	Towel Disp/Waste Recpt	8.00 each	1,157	5,417	821.81 /each	6,574
			5G		***17,480***	***56,451***		***73,982***
	5H							
		2071.01	General Disposal	21.20 cuyd	437	-	27.16 /cuyd	576
		2075.00	Saw Concrete Slab to 6"	92.00 lnft	501	-	7.56 /lnft	695
		2075.00	Chip out Slab	64.00 sqft	791	6	14.11 /sqft	903
		2076.00	Remove CMU 6"	710.00 sqft	2,588	-	3.97 /sqft	2,816
		2084.50	Remove Toilet Accessories	28.00 each	281	-	10.03 /each	281
		2088.01	Remove Ceramic Tile Floor	168.00 sqft	310	-	1.85 /sqft	310
		2088.01	Flash Patch @ Wall Removal	71.00 sqft	164	150	4.41 /sqft	313
		2088.50	Remove Plaster Ceiling Metal Lath	168.00 sqft	378	-	2.25 /sqft	378
		2088.60	Remove Sink	7.00 each	860	-	122.82 /each	860
		2088.60	Remove Water Closet	7.00 each	983	-	140.39 /each	983
		3310.01	Patch Conc. Slab Trench etc.	92.00 sqft	499	1,087	17.23 /sqft	1,586
		4050.10	Interior Scaffold	1,120.00 sqft	1,245	470	1.77 /sqft	1,982
		4050.15	Concrete Block	2.00 m	-	-	243.89 /m	488
		4105.00	Mortar Type "N"	1.98 cuyd	240	429	337.92 /cuyd	669
		4110.01	Grout Fill 3000 psi,1/2" Gravl	0.93 cuyd	262	179	494.65 /cuyd	460
		4110.01	Grout Single Door Frame	7.00 each	445	143	88.71 /each	621
		4157.00	Re-Bar #5 & #6	198.17 lbs	400	211	3.09 /lbs	612
		4158.00	Horiz Wall Reinf 6" Hot Dippd	0.80 mlf	356	136	615.49 /mlf	492
		4221.20	Blk 6" Standard Face Reg Wt	971.00 each	11,872	2,181	14.47 /each	14,053
		4221.50	Lintel 6" Stand Face Reg Wt	100.00 each	1,858	657	26.60 /each	2,660
		5510.35	Angle Bolted To Masonry	400.00 lb	1,413	1,204	6.74 /lb	2,696
		6113.20	Block Misc Toilet Accessories	53.00 each	958	266	23.10 /each	1,224
		6113.40	Rough Bucks 2 x 6 Doors	119.00 lnft	298	81	3.18 /lnft	379
		7910.01	Polysulfide Sealant 1/4" Interior	119.00 lnft	1,116	26	9.60 /lnft	1,143
		8110.01	H.M. Frame 18ga Interior Single	7.00 each	692	1,209	271.69 /each	1,902
		8210.01	Door M Core 3-0 x 7-0 Louver	7.00 each	966	3,486	635.96 /each	4,452
		8710.01	Finishing Hardware Int Budget w Closure	7.00 each	949	5,585	933.46 /each	6,534
		9210.01	Plaster Patch @ Wall Removal	120.00 sqft	1,998	213	18.83 /sqft	2,260
		9210.01	Plaster Patch Ceiling @ Wall Removal	71.00 sqft	386	113	7.17 /sqft	509
		9253.30	GWB 5/8" Water Resistant Clgs	448.00 sqft	415	194	1.36 /sqft	609
		9254.00	Labor GWB Ceiling Finish	448.00 sqft	499	34	1.19 /sqft	533
		9310.01	Ceramic Tile Floor Grade 2	448.00 sqft	6,240	2,720	20.00 /sqft	8,960
		9310.01	Ceramic Trim: Cove Base	224.00 lnft	5,738	976	29.98 /lnft	6,714
		9510.10	Susp Clg 1-1/2" Channel	448.00 sqft	1,504	700	4.92 /sqft	2,204
		9920.01	Paint Wd Door & Metal Frame	7.00 each	491	100	84.45 /each	591
		9920.01	Epoxy Paint GDW Clg	448.00 sqft	1,036	353	3.10 /sqft	1,389

Location	Bid Item	Phase	Description	Takeoff Quantity	Labor Amount	Material Amount	Total Cost/Unit	Total Amount
	5H							
		9920.01	Paint Int CMU Spray p+2ct	749.00 sqft	706	209	1.22 /sqft	915
		9920.01	Epoxy Paint Int CMU	749.00 sqft	1,732	628	3.15 /sqft	2,360
		9920.01	Epoxy Paint Exist Int CMU	896.00 sqft	1,305	501	2.02 /sqft	1,806
		10800.01	Grab Bar 1-1/4" S.S. 36"	14.00 each	506	545	75.10 /each	1,051
		10800.01	Mirror 18" x 30" S.S.	7.00 each	329	562	127.24 /each	891
		10800.01	Soap Dispenser	7.00 each	506	1,450	279.41 /each	1,956
		10800.01	Stainless Steel Shelf	11.00 lnft	181	419	54.50 /lnft	600
		10800.01	Toilet Tissue Disp Dbl	7.00 each	211	193	57.61 /each	403
		10800.01	Towel Dispenser Surface Mtd	7.00 each	316	377	99.01 /each	693
			5H		***54,961***	***27,792***		***84,510***
	5L							
		2071.01	General Disposal	0.50 cuyd	10	-	27.18 /cuyd	14
		2075.00	Saw Concrete Slab to 6"	44.00 lnft	240	-	7.56 /lnft	333
		2075.00	Chip out Slab	56.00 sqft	692	5	14.11 /sqft	790
		14405.00	Lift Commercial	2.00 each	5,978	30,684	18,488.17 /each	36,976
			5L		***6,920***	***30,689***		***38,113***
	5N							
		3131.00	Ramp Forms 2 use	296.00 lnft	2,341	527	9.69 /lnft	2,867
		3225.00	Wiremesh - Ramp 6x6 6/6	4.24 sqs	293	216	119.99 /sqs	509
		3309.50	Ramp Conc 4000 psi	7.85 cuyd	361	1,113	196.62 /cuyd	1,543
		3375.00	Cure Conc w/burlap Ramp	4.24 sqs	109	50	37.42 /sqs	159
		3380.01	Broom/Float Finish Ramp	424.00 sqft	373	-	0.88 /sqft	373
		5510.80	Stair Railing Galv 1-1/2" 2 pipe	16.00 lnft	405	881	81.63 /lnft	1,306
		9910.01	Paint Ext Stair Hand 1 Rail	32.00 lnft	47	9	1.74 /lnft	56
			5N		***3,928***	***2,795***		***6,813***
	5Q							
		2071.01	General Disposal	0.50 cuyd	10	-	27.18 /cuyd	14
		2075.00	Remove Locker Base	2.00 lnft	34	-	20.38 /lnft	41
		2084.50	Relocate Lockers	2.00 each	206	-	103.23 /each	206
			5Q		***251***			***261***
	5R							
		2071.01	General Disposal	0.40 cuyd	8	-	26.93 /cuyd	11
		2084.50	Remove Kitchen Serve	22.00 lnft	318	-	14.45 /lnft	318
			5R		***326***			***329***
	5T							
		2071.01	General Disposal	6.00 cuyd	124	-	27.16 /cuyd	163
		2084.01	Remove Hardware	163.00 each	7,368	-	45.20 /each	7,368
		8710.01	Finishing Hardware Ext Budget	36.00 each	8,136	43,313	1,429.15 /each	51,449
		8710.01	Finishing Hardware Int Budget w Closure	127.00 each	17,222	101,328	933.46 /each	118,550
			5T		***32,850***	***144,641***		***177,530***
	5V							
		15250.00	Fiberglass 1" Pipe	16.00 lnft	91	25	7.24 /lnft	116
			5V		***91***	***25***		***116***
			5 HC ACCESS		**136,301**	**275,016**		**414,990**
6 FINISHES GEN								
	6A							
		2071.01	General Disposal	9.90 cuyd	204	-	27.17 /cuyd	269
		2088.50	Remove Acoust Tile	1,064.00 sqft	1,537	-	1.45 /sqft	1,537
		9510.50	MinFbr Tegulr Std 2x4 3/4" < 250 sf	1,064.00 sqft	3,467	3,620	6.66 /sqft	7,087
			6A		***5,208***	***3,620***		***8,893***
	6AA							
		9910.01	Paint Exist Fascia 2 ct	290.00 lnft	403	41	1.53 /lnft	443
		9910.01	Paint Exist Ext Soffit 2 ct	216.00 sqft	212	25	1.10 /sqft	237
			6AA		***615***	***65***		***680***
	6B							
		4520.01	Cut & Repoint CMU Hard Mortar	339.00 lnft	3,506	469	14.55 /lnft	4,933
		4520.01	Cut & Repoint Brick Soft Mortr	658.00 sqft	4,751	474	9.88 /sqft	6,501
		4520.01	Remove Individual Brick Allow	1,013.00 each	68,097	-	85.36 /each	86,470
		4520.01	Patch Individual Brick Allow	1,013.00 each	18,131	1,459	19.34 /each	19,590
		4520.01	Remove CMU 8" Allow	169.00 each	10,076	-	64.86 /each	10,961
		4520.01	Patch in 8" CMU Allow	169.00 each	5,027	451	32.41 /each	5,478
			6B		***109,587***	***2,854***		***133,933***
	6BB							
		2071.01	General Disposal	0.60 cuyd	12	-	27.15 /cuyd	16
		2080.05	Remove Fascia	63.00 lnft	248	-	3.93 /lnft	248
		7620.30	Fascia Copper 12"	63.00 lnft	568	1,838	38.19 /lnft	2,406
			6BB		***828***	***1,838***		***2,670***
	6CC							
		3328.00	Patch Concrete Wall	10.00 sqft	135	239	37.50 /sqft	375
			6CC		***135***	***239***		***375***
	6D							
		4520.01	Cut & Repoint Brick Soft Mortr	190.00 sqft	1,372	137	9.88 /sqft	1,877
			6D		***1,372***	***137***		***1,877***
	6DD							
		2079.00	Remove Trim to 6" Window	8.00 lnft	8	-	1.05 /lnft	8
		6450.85	Window Trim Select	8.00 lnft	49	20	8.62 /lnft	69

Location	Bid Item	Phase	Description	Takeoff Quantity	Labor Amount	Material Amount	Total Cost/Unit	Total Amount
	6DD							
		9910.01	Paint Ext Wood Trim	8.00 sqft	14	2	2.04 /sqft	16
			6DD		***72***	***22***		***94***
	6E							
		2071.01	General Disposal	1.60 cuyd	33	-	27.17 /cuyd	43
		2088.70	Remove Louvers	43.00 sqft	494	-	11.48 /sqft	494
		5510.05	Stl Angles 1000 - 2000 lbs	221.00 lb	415	323	3.34 /lb	738
		6113.40	2 x 6 PT Louvers	70.00 lnft	188	79	3.82 /lnft	267
		7910.01	Backer Rod ½"	70.00 lnft	212	6	3.12 /lnft	219
		7910.01	Polysulfide Sealant 1/4" Interior	140.00 lnft	1,313	31	9.60 /lnft	1,344
		9920.01	Paint Louvers	43.00 sqft	74	15	2.06 /sqft	88
		15856.00	Fixed Blade Stormproof	43.00 sqft	1,654	1,898	82.61 /sqft	3,552
			6E		***4,382***	***2,353***		***6,745***
	6GG							
		3328.00	Patch Concrete Wall	120.00 sqft	1,626	2,874	37.50 /sqft	4,499
			6GG		***1,626***	***2,874***		***4,499***
	6HH							
		7620.30	Refasten Fascia	61.00 lnft	820	0	13.45 /lnft	820
			6HH		***820***			***820***
	6JJ							
		5516.00	Grate Weld StlGlv 3/4 x 1/8	30.00 sqft	115	507	20.94 /sqft	628
			6JJ		***115***	***507***		***628***
	6KK							
		9920.01	Paint Exist Int CMU Spray 2 ct	52,576.00 sqft	22,519	9,352	0.61 /sqft	31,870
			6KK		***22,519***	***9,352***		***31,870***
	6MM							
		8110.01	H.M. Frame Repair Allow	1.00 each	198	86	284.22 /each	284
			6MM		***198***	***86***		***284***
	6NN							
		2071.01	General Disposal	0.60 cuyd	12	-	27.15 /cuyd	16
		2088.01	Remove Wood Floor	60.00 sqft	136	-	2.26 /sqft	136
		9560.01	Patch Wood Floor	60.00 sqft	385	404	13.16 /sqft	789
		9560.01	Sand & Finish Floor	60.00 sqft	130	55	3.08 /sqft	185
			6NN		***663***	***459***		***1,126***
	6P							
		2071.01	General Disposal	9.80 cuyd	202	-	26.93 /cuyd	264
		2088.50	Rem. Acoust Tile & Grid	1,060.00 sqft	1,276	-	1.20 /sqft	1,276
		9510.50	Mylar Faced Std 2x4 3/4" 250-500 sf	1,060.00 sqft	1,465	4,189	5.33 /sqft	5,654
			6P		***2,943***	***4,189***		***7,194***
	6PP							
		5510.05	Stl Angles 1000 - 2000 lbs	74.00 lb	139	108	3.34 /lb	247
			6PP		***139***	***108***		***247***
	6RR							
		2071.01	General Disposal	2.70 cuyd	56	-	27.16 /cuyd	73
		2079.00	Remove Exterior Metal Panels	288.00 sqft	462	-	1.61 /sqft	462
		7410.00	Alluminum Wall Panel	288.00 sqft	2,672	4,592	25.22 /sqft	7,264
			6RR		***3,190***	***4,592***		***7,800***
	6SS							
		4710.10	Clean Exist Brick Bio Growth	3.00 sqs	1,055	76	376.92 /sqs	1,131
			6SS		***1,055***	***76***		***1,131***
	6V							
		2071.01	General Disposal	4.00 cuyd	82	-	26.92 /cuyd	108
		2088.01	Remove Carpet & Pad	432.00 sqft	277	-	0.64 /sqft	277
		9660.01	Floor Resil Base 4"	84.00 lnft	122	67	2.25 /lnft	189
		9685.00	Carpet Commercial 32oz	48.00 sqyd	651	1,949	54.15 /sqyd	2,599
			6V		***1,132***	***2,016***		***3,173***
	6W							
		4710.10	Clean Masonry from Water Damage	219.00 sqft	2,244	126	10.82 /sqft	2,370
			6W		***2,244***	***126***		***2,370***
	6X							
		2071.01	General Disposal	2.40 cuyd	49	-	26.92 /cuyd	65
		2078.00	Remove Ceiling Framing	264.00 sqft	593	-	2.25 /sqft	593
		2088.50	Rem. Acoust Tile & Grid	264.00 sqft	318	-	1.20 /sqft	318
		9510.50	MinFbr SqEdge Std 2x4 3/4" 250 - 500 sf	264.00 sqft	365	691	4.00 /sqft	1,056
			6X		***1,326***	***691***		***2,032***
	6Y							
		2071.01	General Disposal	1.20 cuyd	25	-	27.17 /cuyd	33
		2080.05	Remove Gutter/Downspouts	62.00 lnft	149	-	2.41 /lnft	149
		7620.15	Downspout Copper Circular 5"	26.00 lnft	252	590	32.39 /lnft	842
		7620.15	Gutter Copper 1/2 Round 5"	36.00 lnft	373	336	19.68 /lnft	709
			6Y		***798***	***926***		***1,733***
	6Z							
		2071.01	General Disposal	1.80 cuyd	37	-	27.17 /cuyd	49
		2079.00	Remove Soffit & Trim	198.00 sqft	890	-	4.50 /sqft	890
		7240.00	Ext Cement Bd Finish System Soffit	198.00 sqft	5,054	717	29.87 /sqft	5,914
		9910.01	Paint Ext Soffit 3 ct	198.00 sqft	204	25	1.16 /sqft	229

Location	Bid Item	Phase	Description	Takeoff Quantity	Labor Amount	Material Amount	Total Cost/Unit	Total Amount
					6.185	***742***		***7.081***
			6 FINISHES GEN		**167,151**	**37,872**		**227,256**

Estimate Totals

Labor	856,978		9,163.423	hrs
Material	898,242			
Subcontract	1,387			
Equipment	70,905		2,319.138	hrs
Other	9,991			
	1,837,503	**1,837,503**		
	Total	***1,837,503***		

Elementary Schools - Structural Report for Hasting School

Lim Consultants, Inc.
90 Hamilton St., Cambridge MA 02139 617/577-9200 ■ FAX 617/577-8252 ■ jharbage@limconsultants.com

Date: Dec. 17, 2008

To: Mr. Daniel Colli
Design Partnership of Cambridge
500 Rutherford Avenue
Charlestown, MA 02129

Re: Hastings Elementary School, Lexington, MA

Dear Mr. Colli,

At your request, we visited the above-mentioned project on 11/25/08 and again on 12/9/08 in order to observe cracks in the masonry wall of the building. Our comments with regard to these observations follow. Photographs and a key to their location (SK-A) are also enclosed.

The area of interest is the west (exterior) wall of the north wing of the building. Severe cracks were observed on the interior (CMU) and exterior (brick) surfaces of this wall at the North end, immediately below the roof (photos 7 and 15). Similar cracking of considerably less magnitude were observed at the South end of this same wall (photos 13 and 14). Vertical cracks were also observed between the west (exterior) wall and intersecting cross walls (photos 8, 9, 10, 11 and 12). Returning to the North end of the West wall, slight cracking was also seen on the exterior at the west end of the North elevation, just below the roof and right around the corner from the severe cracks mentioned above (photo 17). Again, at the North end of the West wall, cracks similar to those described above but of lesser magnitude appear have developed in the exterior brick veneer Just below the second floor directly below the more severe cracking above (photo 16).

A second visit to the site revealed the existence of an expansion joint between the North and South wings of the building at the location shown on the key plan (see SK-A). It was also determined that the second level and flat portions of the roof were constructed of continuous cast in place concrete slabs. These slabs may turn down so as to form a spandrel capable of spanning the long openings in the exterior walls. At this time we confirmed that the wall in question is approximately 135 feet long and does not contain any control joints. This visit also included access to the roof and the opportunity to observe and photograph distressed area described above in greater detail (photo 22, 23, 24, 26 and 27).

We have spoken to Mr. Shawn Newell at the Lexington school department. He informed us that some record drawings of the Hasting School are available. Mr. Newell offered to email us a list of these drawings. We will forward this list along to you as soon as it is received.

Lim Consultants, Inc.
90 Hamilton St., Cambridge MA 02139 617/577-9200 ■ FAX 617/577-8252 ■ jharbage@limconsultants.com

At this time, It is our opinion that safety of the building occupants is not an immediate concern. For the present, we recommend that the conditions described herein be monitored on a regular basis so that any changes impacting safety can be promptly brought to your attention.

With regard to cause, there is little evidence that foundation settlement plays a significant part in the cause of these cracks. Rather, it appears that their cause is the result of lateral movement due to seasonal expansion and contraction combined with and possibly long term effects of concrete and/or masonry shrinkage. At present, we do not know whether the expansion joint is effective. Hence we cannot be more specific with respect to cause at this time or to make recommendations for final and durable repairs. Rather, we suggest the following actions for your consideration. Of first importance is a commitment to regular inspections so that safety can be assured while a final solution of this problem is developed. Also of importance is the need to seal these cracks on the exterior face of the building so that additional deterioration is minimized. This sealant need only be considered temporary in nature and should be sufficiently pliable so as to not introduce additional restraints to the free movement of the structure at the distressed areas.

Other recommendations for your consideration are as follows.

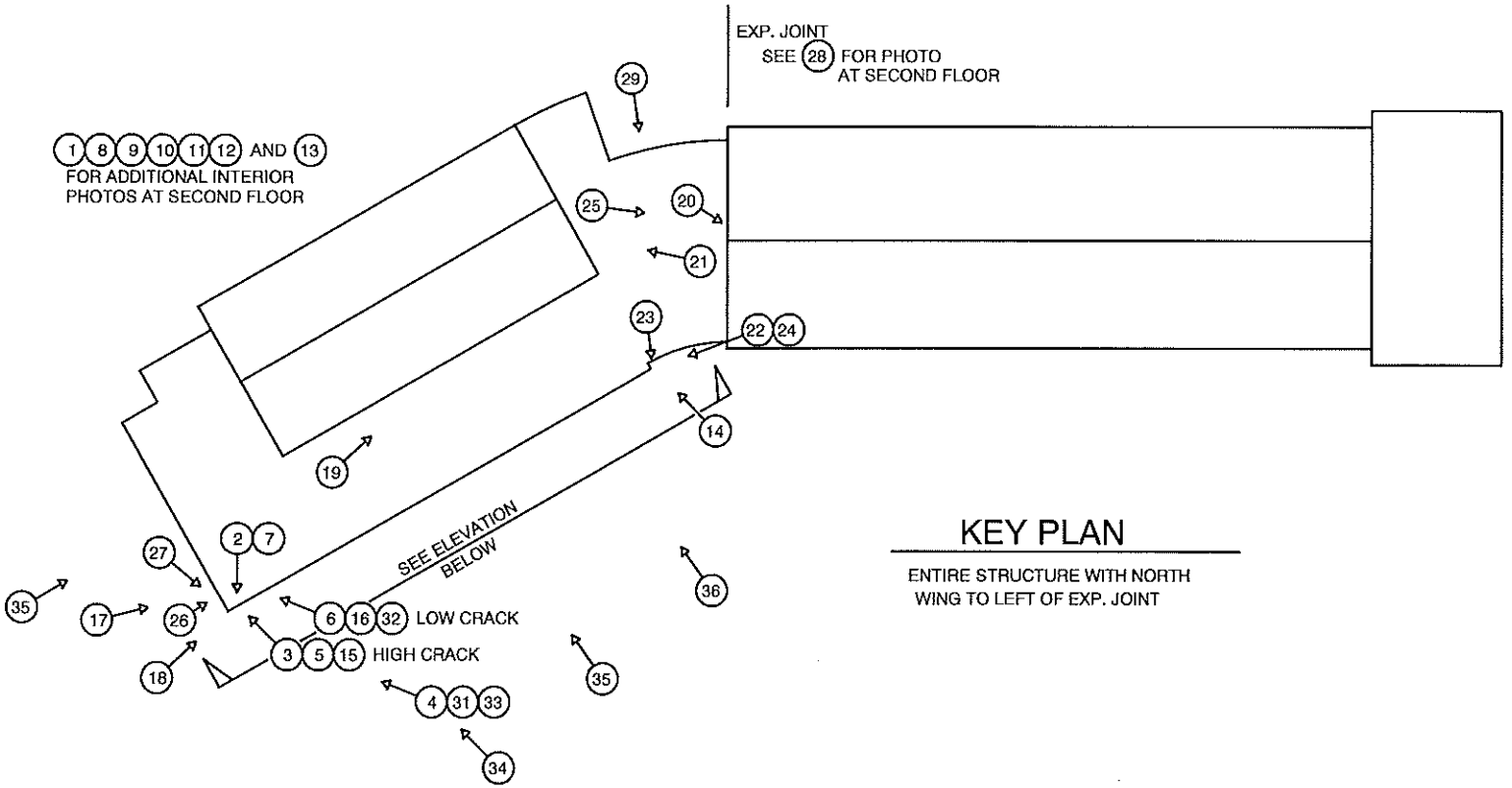
1. Provide means of observing seasonal vatiations in crack size due to temperature change.
2. Map in greater detail the relative movements of the structure.
3. Review existing record drawings
4. Consider value of more intrusive investigation if questions remain regarding construction details after a thorough review of drawings. This work would best be done during periods when the school is not in session.

Armed with this information, it should be possible to determine the cause of this problem with greater specificity and develop a lasting remedial recommendation. Thank you for giving us the opportunity to work with you in connection with this problem.

Sincerely yours,

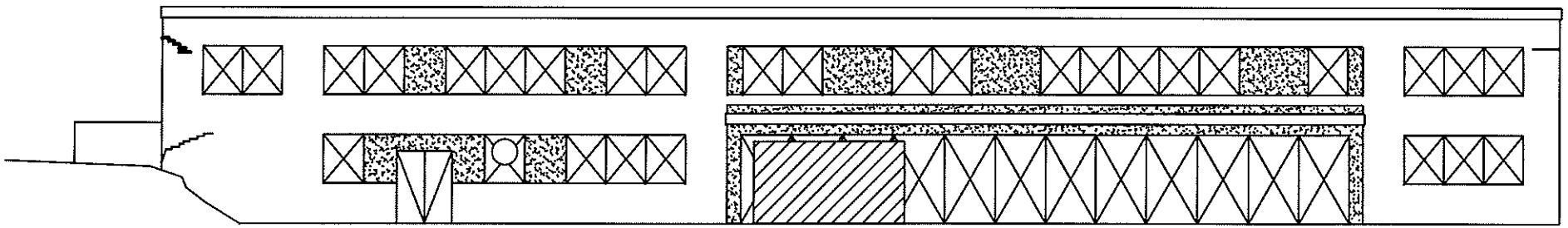
John R Harbage

John Harbage, P.E.
Lim Consultants



KEY PLAN

ENTIRE STRUCTURE WITH NORTH
WING TO LEFT OF EXP. JOINT



ELEVATION - WEST WALL OF NORTH WING

SK-A

DEC. 17, 2000

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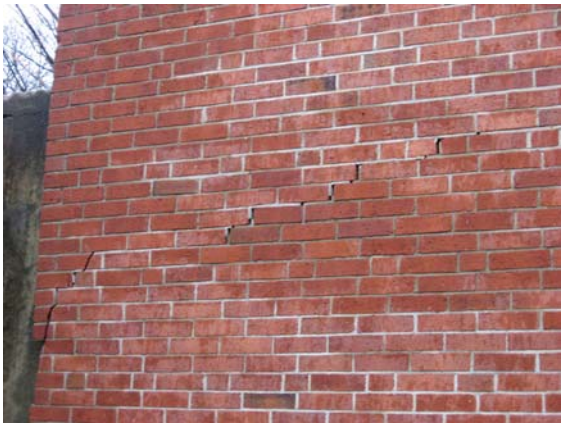

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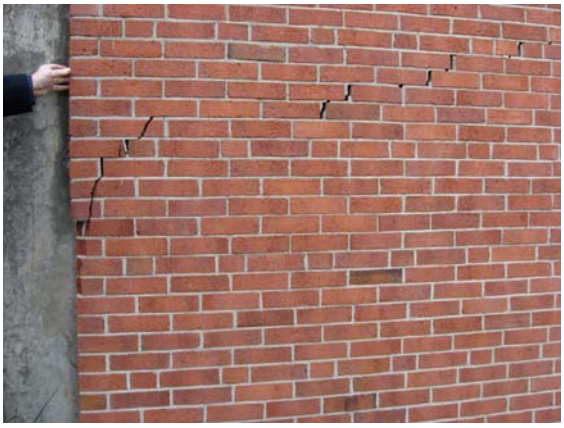

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High School – E/P/FP Report

Lexington Elem. Schools
Master Plan Study

Lexington High School

Executive Summary – Electrical

This facility was recently renovated during the early 2000's and consists of 325,848sq.ft. The existing electrical systems due to their recent installation are in good condition. Remote building services interconnect to main building and run underground.

Existing Conditions

- Exterior parking area lighting consists of 400 watt metal halide fixtures on 30' round tapered poles. Roadways have 18' poles with 175 watt metal halide fixtures. Exterior lighting is controlled with mechanical time clocks for "ON and OFF". Building mounted 250 watt metal halide floods also exist.

- There is no automated lighting control system for facility.

- Electrical distribution consists of an underground primary service of 13.8kv to a 1000kva pad mounted transformer, utility owned. Secondary service runs underground to a 2500 ampere, 277/480V, 3Ø, 4W switchboard located in Building C. Feeders for the remainder of the buildings are fed from this switchboard and run underground. Building "G" has a 1600 ampere switchboard which in turn also feeds a 400 ampere distribution panel in Building "J". Building "H" is fed directly from Building "C" switchboard with a 400 ampere feeder. Boiler Room switchgear is currently being replaced due to water damage as a result of a water heater rupture.

- The emergency system consists of a 600kw exterior generator housed in a walk-in sound attenuated enclosure. The generator is diesel fired fed from a remote underground fuel tank. The generator is a Kohler Model #600ROZD4. The generator has a separation of 6 ½' from the pad mounted transformer. Building "C" has two automatic transfer switches housed in same emergency room. One switch, 225 amps is for emergency lighting for entire facility. The second 250 amp transfer switch is for stand-by loads. A system of emergency by-pass relay cabinets exist. Exit signs appear to have fair coverage.

- Fire alarm system consists of a voice evacuation, addressable system with the fire command center located in Building "D" for the main building consisting of Buildings A, B, C, D, E, and F. The manufacturer is Simplex 4120 Series. A radio master box #6122 transmits alarms to fire department. Buildings G, H, and J each have their own fire command center and share a second radio master box located in the "J" Building to transmit alarms to fire department. Fire alarm system meets ADA Standards. Smokes exist in egress corridors. Elevators have recall. Manual pull stations have tamper resistant covers. Sprinkler system is supervised. Toilets have strobes. Classrooms have speaker/strobes. Facility appears to have good coverage of speaker/strobes. Auditorium fire curtain appears to be connected to fire alarm.

- Corridor lighting consists of 2 x 4 recessed 18 cell parabolics with three (3) T8 lamps and electronic ballasts controlled with local key switches.
  Classroom lighting consists of recessed parabolics controlled with two (2) switches. There is no occupancy sensor.
  Auditorium lighting consists of recessed cans with 250W Halogen lamps. There are four (4) connector strips for theatrical lighting. Stage has a Colortran 96 dimmer rack.
  Kitchen lighting is with wraparound fixtures.
  Cafeteria lighting consist of suspended 30" round indirect luminaries.
  Gymnasium and field house have 2 x 4 fluorescent high bays with four (4) T5HO lamps with lens and wireguard. Gym lights are controlled with switches and occupancy sensors. Field house lights are breaker controlled.
  There are no lighting occupancy sensors in this facility to turn lights OFF when space is unoccupied with the exception of the gymnasium.

- Security system consists of a Detection System Inc. DS7 400X zoned system. Each building has its own control panel and remote keypads. Dual tech sensors exist in corridors.
  Exterior doors and all auditorium doors are alarmed. Facility is connected to a remote central station.

- Classrooms have a Category 5 Network. Classrooms have 1 to 4 data drops and one (1) CATV drop. School has a wireless network. There is no central UPS for head end equipment.

- Paging/Intercom/Master Clock is a Simplex 5100 Series with rack mounted equipment. There is corridor flush mounted speakers. Classrooms have a wall phone with a clock/speaker.

- There is no lightning protection system.

- There is a 4kw photovoltaic system mounted on roof.

- Gymnasium power is connected to the generator.

Proposed System Priorities:

Priority 1 - Immediate Needs

- Emergency closet near kitchen has contactor very loud, near failure condition.
  » ***$1,000.00***

- One hood light fixture missing protective globe.
  » ***$100.00***

- Servery has two (2) open recessed cans, need lens.
  - » **$500.00**

- 60A/2P breaker for photovoltaic system is not GFI. Breaker to be changed to GFI type.
  - » ***$750.00***

Priority 2: 1 – 5 Year

- Exterior lighting not controlled with photocell "ON", timeclocks only. Photocell needs to be added to system.
  - » ***$5,000.00***

- Selective kitchen loads including refrigeration should be reconnected to the generator.
  - » ***$25,000.00***

- Provide automated lighting control system for common area lighting and exterior lighting.
  - » ***$100,000.00***

Lexington Elem. Schools
Master Plan Study

Lexington High School

Executive Summary - Plumbing/Fire Protection

The Lexington High School has received minimal maintenance on the plumbing systems and equipment over its occupied years. There has been two separate renovations to the school one in 2000 and another in 2004. Even with adequate maintenance, systems will gradually deteriorate due to scale and poor water conditions. Most of the systems have been replaced recently and are working adequately at this time.

Fixtures:

- Fixtures are a mix of original fixtures and new fixtures installed as part of the 2000 renovation. The majority of the fixture do meet the accessibility code as well as the water conservation requirements of the Plumbing Code.

- The water closets are generally wall hung vitreous china, flush valve type with siphon jet action.

- The urinals are wall hung vitreous china, flush valve type with blow out action.

- The lavatories are wall hung vitreous china. The faucets are hot and cold water controls.

- The drinking fountains are generally wall hung stainless, bi-level electric water coolers with recessed coolers.

Water System:

- There are two separate domestic water services located within the facility. The first domestic water service enters the main Boiler Room located in building D. This service entering the building is 4 in. and is complete with a water meter as well as a pressure reducing valve with by-pass and reduced pressure backflow preventer. The pressure reducing valve pressure is set to reduce the incoming 100 psi down to the set pressure 80 psi.

- The domestic hot water for the core of the school is supplied from a new plate and frame heat exchanger which fed off of the heating boilers. There are four new 200 gallon storage tanks being installed due to a failure of the original storage tanks. The domestic hot water for the three outer buildings of the school is supplied from a 250 gall gas fired PVI tank type water heater which is located in the Boiler Room in Building G. The non-potable hot water for the science classrooms is supplied from a separate 250 gallon gas fired PVI tank type water heater which is located in the Boiler Room of Building G.

- There is a master thermostatic mixing valve on the domestic hot water system prior to being distributed to the building hot water system. There is a separate 140 degree F. hot water supplied to the Kitchen which also includes a thermostatic mixing valve.

Drainage System:

- The sanitary and storm drainage systems are piped with cast iron. The exposed piping is visibly in good condition.

- The sanitary drainage system is piped to a municipal sewer system.

- The roof is generally flat and is drained by roof drains and a roof drainage system, which exits the building and connects to a municipal storm drainage system.

- There 2 acid neutralization systems in the school. The first system is dedicated to the science classroom drainage. The second system is dedicated to the photograph drainage. Each of the systems includes a mixing tank with mixer, base and acid storage tanks, injection pumps and ph monitoring. These systems appear to have minimal or no maintenance since their installation. The base storage tank was empty and the acid storage tank was approximately half full. The acid injection pump appeared to be not operating. The ph monitoring system was reading a ph level of 4.5 at discharge and this should have a ph level around 7.

Natural Gas System:

- The building has two separate has services. The first service enters the Boiler Room in Building D and provides fuel for heating, domestic hot water and cooking. The second service enters the Boiler Room in Building G and supplies fuel for heating, domestic hot water and the science classrooms..

Kitchen:

- The kitchen equipment is all generally original new and is in good working order.

- There is a grease trap in the kitchen that appears to be dedicated for the 3-pot sink. All other fixtures appear to go to a dedicated kitchen waste drainage system.

Fire Protection:

- The school is protected by a combination standpipe/sprinkler system.

- The core of the school is supplied by an 8” fire service with a Double Check Valve Assembly located in the Boiler Room of Building D. There are three separate alarm valves which are then broken down by zone control assemblies.

- The three outer buildings each have separate fire services which service the buildings. The outer buildings also have multiple zones associated with it.

- There are areas throughout the school that sprinkler protection is obstructed by ductwork. Approximately 5 percent of the school appears to have sprinkler coverage deficiencies.

Proposed System Priorities

Priority 1 – Immediate Needs and Requirements:

- Provide proper maintenance of the ph neutralization systems so they may operate as designed and discharge waste at an acceptable level.
  - » ***$2,500.00***

- Provide modifications to the existing fire protection sprinkler system to eliminate sprinkler coverage deficiencies.
  - » ***$10,000.00***

Priority 2 – 5 Year Requirements:

- All plumbing fixtures will be replaced with new water conserving type fixtures capable of saving approximately 30% of overall water usage of the building.
  - » ***$60,000.00***

Priority 3 – 10 Year Requirements:

- A new gas fired water heater boiler will be provided for the core buildings of the school independent of the heating boilers to eliminate the need for the heating boilers to fire during non-heating months.
  - » ***$25,000.00***

High School – Base Renovation Cost Estimate

LEXINGTON HIGH SCHOOL RENOVATION
STUDY ESTIMATE - 1-1-09
LEXINGTON, MA

Project name Lexington High school

Lexington
MA

Architect **TDPC**

Estimator *Essential Estimating*

Location	Labor Amount	Material Amount	Sub Amount	Equip Amount	Total Amount
1 LIFE SAFETY	**1,776**	**1,669**		**6**	**3,450**
2 BUILDING CODE	**69,238**	**190,957**		**3,877**	**264,072**
3 EXTERIOR	**466,289**	**493,805**		**647**	**960,741**
4 HAZARDOUS MAT	**808**	**38**			**846**
5 HC ACCESS	**411,368**	**458,780**		**13,010**	**883,158**
6 FINISHES GEN	**111,008**	**53,820**		**4,053**	**168,882**

Estimate Totals

Labor	1,060,487		10,544.202	hrs
Material	1,199,070			
Equipment	21,593		1,166.657	hrs
	2,281,150	**2,281,150**		
	Total	***2,281,150***		

Location	Bid Item	Description	Labor Amount	Material Amount	Sub Amount	Equip Amount	Total Amount
1 LIFE SAFETY							
	1A		*630*	*865*			*1,495*
	1F		*1,145*	*804*		*6*	*1,955*
		1 LIFE SAFETY	**1,776**	**1,669**		**6**	**3,450**
2 BUILDING CODE							
	2C		*372*	*1,341*		*1*	*1,714*
	2I		*13,746*	*20,161*			*33,907*
	2K		*566*	*69*		*16*	*651*
	2L		*650*			*38*	*688*
	2P		*72*			*3*	*75*
	2R		*53,724*	*169,257*		*3,819*	*226,800*
	2S		*107*	*129*			*236*
		2 BUILDING CODE	**69,238**	**190,957**		**3,877**	**264,072**
3 EXTERIOR							
	3A		*283,437*	*389,215*		*420*	*673,072*
	3B		*4,054*	*7,442*		*141*	*11,637*
	3G		*666*	*473*			*1,140*
	3H		*171,578*	*82,805*			*254,382*
	3J		*4,129*	*12,847*		*87*	*17,062*
	3K		*376*	*30*			*406*
	3M		*1,973*	*984*			*2,957*
	3P		*77*	*10*			*86*
		3 EXTERIOR	**466,289**	**493,805**		**647**	**960,741**
4 HAZARDOUS MAT							
	4B		*808*	*38*			*846*
		4 HAZARDOUS MAT	**808**	**38**			**846**
5 HC ACCESS							
	5A		*70,969*	*13,012*		*4,631*	*88,612*
	5AA		*809*	*197*		*1*	*1,006*
	5B		*55,777*	*122,336*		*649*	*178,762*
	5BB		*636*	*14,590*			*15,226*
	5D		*1,834*			*11*	*1,845*
	5E		*963*				*963*
	5F		*23,698*	*26,491*		*932*	*51,121*
	5G		*28,289*	*70,540*		*67*	*98,896*
	5GG		*3,917*	*20,327*		*35*	*24,279*
	5H		*146,871*	*87,933*		*4,038*	*238,843*
	5HH		*3,843*	*212*		*3*	*4,057*
	5JJ		*1,124*				*1,124*
	5K		*2,425*	*1,515*		*233*	*4,172*
	5L		*3,401*	*15,346*		*241*	*18,988*
	5M		*21,671*	*34,993*		*880*	*57,544*
	5MM		*2,583*	*426*		*99*	*3,108*
	5N		*20,418*	*17,700*		*1,092*	*39,211*
	5NNN		*17,848*	*24,000*		*74*	*41,922*
	5P		*454*	*2,001*		*1*	*2,456*
	5X		*1,824*	*3,934*		*24*	*5,782*
	5Z		*2,015*	*3,225*			*5,240*
		5 HC ACCESS	**411,368**	**458,780**		**13,010**	**883,158**
6 FINISHES GEN							

Location	Bid Item	Description	Labor Amount	Material Amount	Sub Amount	Equip Amount	Total Amount
			23,772			313	24,085
	6AAA		728	193			922
	6B		18,082	588		2,213	20,883
	6BBB		181	97			277
	6CC		312	551			862
	6CCC		426	362		3	791
	6D		3,480	347		935	4,763
	6E		548	266		1	815
	6G		203	72		1	277
	6GGG		302	44			346
	6H		3,034	612			3,647
	6HH		834				834
	6HHH		1,278	1,221		7	2,505
	6JJJ		102	6			108
	6KKK		1,123	2,000		23	3,146
	6L		4,152	960		390	5,503
	6LLL		692	526		5	1,222
	6MM		6,596	17,160		89	23,846
	6MMM		111	16			128
	6NNN		82	16			99
	6OOO		2,127	2,936			5,062
	6PPP		352	803			1,154
	6Q		1,407	608		3	2,018
	6QQQ		279	14			293
	6SS		1,006	73			1,078
	6SSS		6,003	2,109			8,112
	6UU		4,434	5,846		16	10,296
	6UUU		2,097	622			2,719
	6VV		1,202	380		29	1,611
	6VVV		271				271
	6W		1,025	57			1,082
	6WW		692	75		17	784
	6WWW		43	24		6	72
	6XXX		96	154			249
	6Y		294	545		1	841
	6YYY		22	164			186
	6ZZZ		23,622	14,372			37,994
		6 FINISHES GEN	**111,008**	**53,820**		**4,053**	**168,882**

Estimate Totals

Labor	1,060,486		10,544.202	hrs
Material	1,199,070			
Equipment	21,593		1,166.657	hrs
	2,281,149	**2,281,149**		
		Total	***2,281,149***	

Location	Bid Item	Phase	Description	Takeoff Quantity	Labor Amount	Material Amount	Total Cost/Unit	Total Amount
1 LIFE SAFETY								
	1A							
		2084.01	*Demo: Doors & Windows*					
			Remove Door	2.00 each	96	-	48.17 /each	96
			Demo: Doors & Windows		*96*		*/each*	*96*
		8210.01	*Doors: Wood*					
			Re Hang Door	2.00 each	261	851	555.91 /each	1,112
			Doors: Wood		*261*	*851*	*/each*	*1,112*
		9920.01	*Painting: Interior*					
			Refinish & Stain Exist Door	2.00 each	273	14	143.56 /each	287
			Painting: Interior		*273*	*14*	*/sqft*	*287*
			1A		***630***	***865***		***1,495***
	1F							
		2071.01	*Demo: General*					
			General Disposal	0.90 cuyd	19	-	26.93 /cuyd	24
			Demo: General		*19*		*/cuyd*	*24*
		2084.50	*Demo: Misc Items*					
			Remove Fire Ext Cabinet	4.00 each	321	-	80.28 /each	321
			Demo: Misc Items		*321*		*/sqft*	*321*
		6113.20	*Blocking: Misc.*					
			Blocking 2 x 6 R.L.	24.00 lnft	82	16	4.11 /lnft	99
			Blocking: Misc.		*82*	*16*	*/mbf*	*99*
		10523.00	*Fire Extinguishers*					
			Fire Ext Cabinet	4.00 each	723	788	377.77 /each	1,511
			Fire Extinguishers		*723*	*788*	*/each*	*1,511*
			1F		***1,145***	***804***		***1,955***
			1 LIFE SAFETY		**1,776**	**1,669**		**3,450**
2 BUILDING CODE								
	2C							
		2071.01	*Demo: General*					
			General Disposal	0.20 cuyd	4	-	27.00 /cuyd	5
			Demo: General		*4*		*/cuyd*	*5*
		2084.01	*Demo: Doors & Windows*					
			Remove Door	1.00 each	32	-	32.10 /each	32
			Demo: Doors & Windows		*32*		*/each*	*32*
		8210.01	*Doors: Wood*					
			Birch Solid Core 3-0 x 7-0 Vision	1.00 each	130	529	658.83 /each	659
			Doors: Wood		*130*	*529*	*/each*	*659*
		8710.01	*Hardware: Finishing*					
			Finishing Hardware Int Budget w Closure	1.00 each	136	798	933.57 /each	934
			Hardware: Finishing		*136*	*798*	*/set*	*934*
		9920.01	*Painting: Interior*					
			Paint Wd Door & Metal Frame	1.00 each	70	14	84.46 /each	84
			Painting: Interior		*70*	*14*	*/sqft*	*84*
			2C		***372***	***1,341***		***1,714***
	2I							
		6015.00	*Fasteners: Frame Anchors*					
			Fastners & Misc	1.00 lsum	-	1	1.27 /lsum	1
			Fasteners: Frame Anchors			*1*	*/each*	*1*
		6113.40	*Blocking: Rough Bucks*					
			Rough Bucks 2 x 6 Doors	153.00 lnft	383	104	3.18 /lnft	487
			Blocking: Rough Bucks		*383*	*104*	*/mbf*	*487*
		8110.01	*Doors: Steel with Frames*					
			H.M. Frame 18ga Interior Single	9.00 each	890	1,555	271.72 /each	2,446
			H.M. Door 18ga 3-0 x 7-0 Vision Lab	9.00 each	796	7,673	941.02 /each	8,469
			Doors: Steel with Frames		*1,686*	*9,228*	*/each*	*10,915*
		8710.01	*Hardware: Finishing*					
			Finishing Hardware Int Budget w Closure	9.00 each	1,221	7,181	933.56 /each	8,402
			Hardware: Finishing		*1,221*	*7,181*	*/set*	*8,402*
		9252.10	*GWB Int Frame: S Studs*					
			S Stud 600 x 12' 20 ga	89.00 each	2,511	1,225	41.98 /each	3,736
			GWB Int Frame: S Studs		*2,511*	*1,225*	*/each*	*3,736*
		9252.30	*GWB Int Frame: Track*					
			Track: Standard 20 ga 6.00 "	184.00 lnft	932	219	6.25 /lnft	1,150
			GWB Int Frame: Track		*932*	*219*	*/lnft*	*1,150*
		9253.10	*GWB: Fasteners*					
			Misc. Accessories	1.00 lsum	269	99	367.96 /lsum	368
			GWB: Fasteners		*269*	*99*	*/each*	*368*
		9253.30	*GWB: Boards & Sheathing*					
			GWB 5/8" Walls	3,660.00 sqft	3,054	1,279	1.18 /sqft	4,333
			GWB: Boards & Sheathing		*3,054*	*1,279*	*/sqft*	*4,333*
		9254.00	*GWB: Finish Mud/Tape*					
			Acoustic Sealant	153.00 lnft	353	6	2.35 /lnft	359
			Labor GWB Wall Finish	1,482.00 sqft	1,270	113	0.93 /sqft	1,383

Location	Bid Item	Phase	Description	Takeoff Quantity	Labor Amount	Material Amount	Total Cost/Unit	Total Amount
			GWB: Finish Mud/Tape		*1,623*	*119*	*/sqft*	*1,742*
		9510.60	*Ceiling: 2x2 Tile*					
			Patch MinFbr SqEdge Std 2x2 3/4" < 250 sf	92.00 sqft	400	289	7.48 /sqft	688
			Ceiling: 2x2 Tile		*400*	*289*	*/sqft*	*688*
		9920.01	*Painting: Interior*					
			Paint Metal Door & Frame	9.00 each	526	115	71.26 /each	641
			Paint GDW Wall Roller p + 2ct	1,482.00 sqft	1,143	301	0.97 /sqft	1,444
			Painting: Interior		*1,669*	*417*	*/sqft*	*2,085*
			2I		***13,746***	***20,161***		***33,907***
	2K							
		2071.01	*Demo: General*					
			General Disposal	0.20 cuyd	4	-	26.95 /cuyd	5
			Demo: General		*4*		*/cuyd*	*5*
		2084.01	*Demo: Doors & Windows*					
			Remove Door & Frame Int Single	1.00 each	112	-	126.97 /each	127
			Demo: Doors & Windows		*112*		*/each*	*127*
		4105.00	*Mortar: All Types*					
			Mortar Type "N"	0.04 cuyd	5	9	338.00 /cuyd	14
			Mortar: All Types		*5*	*9*	*/cuyd*	*14*
		4158.00	*Reinforce: Horizontl Wall*					
			Horiz Wall Reinf 6" Hot Dippd	0.02 mlf	9	3	615.00 /mlf	12
			Reinforce: Horizontl Wall		*9*	*3*	*/mlf*	*12*
		4221.20	*Conc. Block: 6"*					
			Blk 6" Stand Face Reg Wt - Infill	24.00 each	436	57	20.53 /each	493
			Conc. Block: 6"		*436*	*57*	*/each*	*493*
			2K		***566***	***69***		***651***
	2L							
		2071.01	*Demo: General*					
			General Disposal	0.70 cuyd	14	-	26.93 /cuyd	19
			Demo: General		*14*		*/cuyd*	*19*
		2084.01	*Demo: Doors & Windows*					
			Remove Door Frame Int Double	2.00 each	257	-	145.11 /each	290
			Remove Transom or Borrowed Lite	56.00 sqft	379	-	6.77 /sqft	379
			Demo: Doors & Windows		*636*		*/each*	*669*
			2L		***650***			***688***
	2P							
		2071.01	*Demo: General*					
			General Disposal	0.40 cuyd	8	-	26.95 /cuyd	11
			Demo: General		*8*		*/cuyd*	*11*
		2084.01	*Demo: Doors & Windows*					
			Remove Screen Door	2.00 each	64	-	32.11 /each	64
			Demo: Doors & Windows		*64*		*/each*	*64*
			2P		***72***			***75***
	2R							
		2071.01	*Demo: General*					
			General Disposal	15.50 cuyd	319	-	26.93 /cuyd	417
			Demo: General		*319*		*/cuyd*	*417*
		2077.00	*Demo: Steel*					
			Remove Metal Stair 4'	90.00 risr	9,843	-	130.75 /risr	11,767
			Remove Steel Rail	230.00 lnft	2,308	-	10.04 /lnft	2,308
			Demo: Steel		*12,151*		*/each*	*14,075*
		5510.80	*Stairs: Stair Parts*					
			Custom Steel Stairs 5'-0"	90.00 risr	16,201	88,510	1,172.09 /risr	105,488
			Wall Rail Steel 1-1/2" 1 pipe	85.00 lnft	2,178	1,755	47.52 /lnft	4,039
			Ornamental Steel Well Rail Mid	140.00 lnft	11,704	35,959	344.49 /lnft	48,229
			Landing Steel Pan	270.00 sqft	7,335	42,403	185.50 /sqft	50,086
			Stairs: Stair Parts		*37,417*	*168,627*	*/flt*	*207,841*
		9920.01	*Painting: Interior*					
			Paint Stair Assembly	718.00 sqft	2,584	420	4.18 /sqft	3,003
			Paint Int Pipe Rails	975.00 lnft	1,253	211	1.50 /lnft	1,464
			Painting: Interior		*3,836*	*630*	*/sqft*	*4,467*
			2R		***53,724***	***169,257***		***226,800***
	2S							
		6113.20	*Blocking: Misc.*					
			Blocking 2 x 4 R.L.	6.00 lnft	17	3	3.26 /lnft	20
			Blocking: Misc.		*17*	*3*	*/mbf*	*20*
		10523.00	*Fire Extinguishers*					
			Fire Blanket	1.00 each	90	126	216.21 /each	216
			Fire Extinguishers		*90*	*126*	*/each*	*216*
			2S		***107***	***129***		***236***
			2 BUILDING CODE		**69,238**	**190,957**		**264,072**

3 EXTERIOR

Location	Bid Item	Phase	Description	Takeoff Quantity	Labor Amount	Material Amount	Total Cost/Unit	Total Amount
	3A							
		2071.01	*Demo: General*					
			General Disposal	63.90 cuyd	1,316	-	27.17 /cuyd	1,736
			Demo: General		*1,316*		*/cuyd*	*1,736*
		2084.01	*Demo: Doors & Windows*					
			Remove Metal Windows	6,906.00 sqft	21,621	-	3.13 /sqft	21,621
			Demo: Doors & Windows		*21,621*		*/each*	*21,621*
		4156.00	*Access: Wall Flashing*					
			Flash Head Lead Ct. Cop 5 oz.	1,650.00 sqft	7,544	7,587	9.17 /sqft	15,132
			Flash Sill Lead Ct. Cop 5 oz.	1,650.00 sqft	6,879	7,126	8.49 /sqft	14,005
			Access: Wall Flashing		*14,423*	*14,713*	*/sqft*	*29,136*
		6015.00	*Fasteners: Frame Anchors*					
			Fastners & Misc	1.00 lsum	-	66	66.07 /lsum	66
			Fasteners: Frame Anchors			*66*	*/each*	*66*
		6113.40	*Blocking: Rough Bucks*					
			Rough Bucks 2 x 6 PT Windows	5,898.00 lnft	22,419	6,661	4.93 /lnft	29,080
			Blocking: Rough Bucks		*22,419*	*6,661*	*/mbf*	*29,080*
		7910.01	*Sealant - Jt Filler Gaskt*					
			Backer Rod ½"	5,898.00 lnft	17,878	540	3.12 /lnft	18,418
			Polyurethane Sealant 1/2"	11,796.00 lnft	112,373	5,866	10.02 /lnft	118,239
			Sealant - Jt Filler Gaskt		*130,250*	*6,407*	*/lnft*	*136,657*
		8520.01	*Window: Aluminum*					
			Custom Proj 4" .125 w Ins Gl Kynar	6,906.00 sqft	77,841	359,766	63.37 /sqft	437,608
			Window: Aluminum		*77,841*	*359,766*	*/sqft*	*437,608*
		9910.01	*Painting: Exterior*					
			Scrape & Prep Ext Misc Surfaces Lintels	1,650.00 sqft	2,686	-	1.63 /sqft	2,686
			Paint Ext Misc Exposed Metal Lintels	1,650.00 sqft	3,458	503	2.40 /sqft	3,962
			Paint Exist Ext Soffit 2 ct	9,608.00 sqft	9,422	1,099	1.10 /sqft	10,520
			Painting: Exterior		*15,566*	*1,602*	*/sqft*	*17,168*
			3A		***283,437***	***389,215***		***673,072***
	3B							
		2071.01	*Demo: General*					
			General Disposal	21.40 cuyd	441	-	27.17 /cuyd	581
			Demo: General		*441*		*/cuyd*	*581*
		2084.01	*Demo: Doors & Windows*					
			Remove Window Treatment	2,307.00 sqft	1,111	-	0.48 /sqft	1,111
			Demo: Doors & Windows		*1,111*		*/each*	*1,111*
		12520.01	*Shades*					
			Vinyl Heavy Wt	2,306.00 sqft	2,502	7,442	4.31 /sqft	9,944
			Shades		*2,502*	*7,442*	*/sqft*	*9,944*
			3B		***4,054***	***7,442***		***11,637***
	3G							
		6015.00	*Fasteners: Frame Anchors*					
			Fastners & Misc	1.00 lsum	-	1	1.26 /lsum	1
			Fasteners: Frame Anchors			*1*	*/each*	*1*
		6113.40	*Blocking: Rough Bucks*					
			Rough Bucks 2 x 6 PT Windows	14.00 lnft	53	16	4.93 /lnft	69
			Blocking: Rough Bucks		*53*	*16*	*/mbf*	*69*
		6413.00	*I Trim: Dr & Window Matrl*					
			Window Stools (Wood)	6.00 lnft	40	45	14.20 /lnft	85
			Apron At Stools	6.00 lnft	20	16	5.94 /lnft	36
			I Trim: Dr & Window Matrl		*60*	*61*	*/lnft*	*121*
		7910.01	*Sealant - Jt Filler Gaskt*					
			Backer Rod ½"	14.00 lnft	42	1	3.12 /lnft	44
			Polyurethane Sealant 1/2"	28.00 lnft	267	14	10.02 /lnft	281
			Sealant - Jt Filler Gaskt		*309*	*15*	*/lnft*	*324*
		8520.01	*Window: Aluminum*					
			Aluminum Sill Sash Jambs	14.00 lnft	206	378	41.74 /lnft	584
			Window: Aluminum		*206*	*378*	*/sqft*	*584*
		9920.01	*Painting: Interior*					
			Paint Wood Sill	6.00 lnft	20	1	3.51 /lnft	21
			Paint Wood Apron	6.00 lnft	18	1	3.11 /lnft	19
			Painting: Interior		*38*	*2*	*/sqft*	*40*
			3G		***666***	***473***		***1,140***
	3H							
		8811.00	*Glass: All Types*					
			Reglaze Insulated Tinted Glass	2,969.00 sqft	171,578	82,805	85.68 /sqft	254,382
			Glass: All Types		*171,578*	*82,805*	*/sqft*	*254,382*
			3H		***171,578***	***82,805***		***254,382***
	3J							
		2071.01	*Demo: General*					
			General Disposal	1.10 cuyd	23	-	27.16 /cuyd	30
			Demo: General		*23*		*/cuyd*	*30*
		2084.01	*Demo: Doors & Windows*					
			Remove Door & Frame Ext Double	3.00 each	450	-	170.04 /each	510

Location	Bid Item	Phase	Description	Takeoff Quantity	Labor Amount	Material Amount	Total Cost/Unit	Total Amount
			Demo: Doors & Windows		*450*		*/each*	*510*
		4110.01	*Mortar: Grout Fill Conc*					
			Grout Double Door Frame	3.00 each	256	86	120.26 /each	361
			Mortar: Grout Fill Conc		*256*	*86*	*/cuyd*	*361*
		4156.00	*Access: Wall Flashing*					
			Flash Head Lead Ct. Cop 5 oz.	18.00 sqft	82	83	9.17 /sqft	165
			Access: Wall Flashing		*82*	*83*	*/sqft*	*165*
		6113.40	*Blocking: Rough Bucks*					
			Rough Bucks 2 x 6 PT Doors	20.00 lnft	50	23	3.63 /lnft	73
			Blocking: Rough Bucks		*50*	*23*	*/mbf*	*73*
		7910.01	*Sealant - Jt Filler Gaskt*					
			Backer Rod ½"	20.00 lnft	61	2	3.12 /lnft	62
			Polyurethane Sealant 1/2"	40.00 lnft	381	20	10.02 /lnft	401
			Sealant - Jt Filler Gaskt		*442*	*22*	*/lnft*	*463*
		8110.01	*Doors: Steel with Frames*					
			H.M. Frame 16ga Galv Double	3.00 each	371	739	370.08 /each	1,110
			H.M. Door Ins 16ga Galv 3-0 x 7-0 Hlf Gl	6.00 each	636	4,589	870.96 /each	5,226
			Doors: Steel with Frames		*1,007*	*5,329*	*/each*	*6,336*
		8710.01	*Hardware: Finishing*					
			Finishing Hardware Ext Budget	6.00 each	1,356	7,220	1,429.30 /each	8,576
			Hardware: Finishing		*1,356*	*7,220*	*/set*	*8,576*
		9910.01	*Painting: Exterior*					
			Paint Ext Door & Frame	6.00 each	463	85	91.34 /each	548
			Painting: Exterior		*463*	*85*	*/sqft*	*548*
			3J		***4,129***	***12,847***		***17,062***
	3K							
		4520.01	*Masonry Restoration*					
			Patch Individual Brick	21.00 each	376	30	19.34 /each	406
			Masonry Restoration		*376*	*30*	*/m*	*406*
			3K		***376***	***30***		***406***
	3M							
		7620.20	*Sheetmetal: Soffits*					
			Soffit Aluminum	163.00 sqft	1,973	984	18.14 /sqft	2,957
			Sheetmetal: Soffits		*1,973*	*984*	*/sqft*	*2,957*
			3M		***1,973***	***984***		***2,957***
	3P							
		4520.01	*Masonry Restoration*					
			ReGrout Stone Hard Mortar	10.00 sqft	77	10	8.61 /sqft	86
			Masonry Restoration		*77*	*10*	*/m*	*86*
			3P		***77***	***10***		***86***
			3 EXTERIOR		**466,289**	**493,805**		**960,741**
4 HAZARDOUS MAT								
	4B							
		2073.00	*Demo: Asbestos Removal*					
			Remove Asbestos Shelf	50.00 sqft	808	38	16.92 /sqft	846
			Demo: Asbestos Removal		*808*	*38*	*/sqft*	*846*
			4B		***808***	***38***		***846***
			4 HAZARDOUS MAT		**808**	**38**		**846**
5 HC ACCESS								
	5A							
		2071.01	*Demo: General*					
			General Disposal	39.80 cuyd	820	-	27.17 /cuyd	1,081
			Demo: General		*820*		*/cuyd*	*1,081*
		2076.00	*Demo: Masonry*					
			Cut Out Opng 4" CMU	434.00 sqft	11,709	-	29.35 /sqft	12,737
			Sawcut 4" CMU	188.00 lnft	3,545	-	30.99 /lnft	5,826
			Tooth Jambs 1 Wythe	203.00 lnft	6,270	-	30.89 /lnft	6,270
			Remove CMU 4"	396.00 sqft	1,283	-	3.53 /sqft	1,396
			Demo: Masonry		*22,808*		*/cuft*	*26,230*
		2080.01	*Demo: Millwork*					
			Remove Tall Cabinet	39.00 lnft	751	-	19.27 /lnft	751
			Remove Casework	3.00 lnft	16	-	5.22 /lnft	16
			Remove Display Case	9.00 lnft	87	-	9.63 /lnft	87
			Demo: Millwork		*854*		*/sqft*	*854*
		2084.01	*Demo: Doors & Windows*					
			Remove Door	80.00 each	2,569	-	32.11 /each	2,569
			Remove Door & Frame Int Single	4.00 each	450	-	127.51 /each	510
			Demo: Doors & Windows		*3,018*		*/each*	*3,079*
		2084.50	*Demo: Misc Items*					
			Remove Lockers	22.00 each	505	-	22.96 /each	505
			Demo: Misc Items		*505*		*/sqft*	*505*
		2088.01	*Demo: Finishes, Floors*					

Location	Bid Item	Phase	Description	Takeoff Quantity	Labor Amount	Material Amount	Total Cost/Unit	Total Amount
		2088.01	*Demo: Finishes, Floors*					
			Flash Patch @ Wall Removal	95.00 sqft	219	200	4.41 /sqft	419
			Demo: Finishes, Floors		*219*	*200*	*/sqft*	*419*
		4050.10	*Misc: Scaffold*					
			Interior Scaffold	828.00 sqft	921	347	1.77 /sqft	1,465
			Misc: Scaffold		*921*	*347*	*/sqft*	*1,465*
		4050.15	*Misc: Material Handling*					
			Concrete Block	2.00 m	-	-	243.91 /m	488
			Misc: Material Handling				*/m*	*488*
		4105.00	*Mortar: All Types*					
			Mortar Type "N"	0.24 cuyd	29	52	337.96 /cuyd	81
			Mortar: All Types		*29*	*52*	*/cuyd*	*81*
		4110.01	*Mortar: Grout Fill Conc*					
			Grout Fill 3000 psi,1/2" Gravl	0.91 cuyd	256	175	494.68 /cuyd	450
			Grout Single Door Frame	4.00 each	255	82	88.72 /each	355
			Mortar: Grout Fill Conc		*511*	*257*	*/cuyd*	*805*
		4157.00	*Reinforce: Vertical Wall*					
			Re-Bar #5 & #6	262.84 lbs	531	280	3.09 /lbs	811
			Reinforce: Vertical Wall		*531*	*280*	*/lbs*	*811*
		4158.00	*Reinforce: Horizontl Wall*					
			Horiz Wall Reinf 4" Hot Dippd	0.77 mlf	345	92	567.25 /mlf	437
			Reinforce: Horizontl Wall		*345*	*92*	*/mlf*	*437*
		4221.25	*Conc. Block: 4"*					
			Blk 4" Standard Face Reg Wt	1,158.00 each	13,284	1,821	13.04 /each	15,104
			Conc. Block: 4"		*13,284*	*1,821*	*/each*	*15,104*
		7910.01	*Sealant - Jt Filler Gaskt*					
			Polysulfide Sealant 1/4" Interior	68.00 lnft	638	15	9.60 /lnft	653
			Sealant - Jt Filler Gaskt		*638*	*15*	*/lnft*	*653*
		8110.01	*Doors: Steel with Frames*					
			H.M. Frame 18ga Interior Single	4.00 each	396	691	271.73 /each	1,087
			Doors: Steel with Frames		*396*	*691*	*/each*	*1,087*
		8210.01	*Doors: Wood*					
			Rehang Door	80.00 each	10,421	0	130.26 /each	10,421
			Door M Core 3-0 x 7-0 Vision	4.00 each	521	1,703	555.91 /each	2,224
			Doors: Wood		*10,942*	*1,703*	*/each*	*12,644*
		8710.01	*Hardware: Finishing*					
			Finishing Hardware Int Budget w Closure	4.00 each	542	3,192	933.56 /each	3,734
			Hardware: Finishing		*542*	*3,192*	*/set*	*3,734*
		9210.01	*Lath/Plastr: Gyp Plaster*					
			Plaster Patch @ Wall Removal	364.00 sqft	6,060	646	18.83 /sqft	6,855
			Plaster Patch Ceiling @ Wall Removal	110.00 sqft	598	175	7.17 /sqft	789
			Lath/Plastr: Gyp Plaster		*6,658*	*821*	*/sqft*	*7,644*
		9253.10	*GWB: Fasteners*					
			Misc. Accessories	1.00 lsum	83	29	112.66 /lsum	113
			GWB: Fasteners		*83*	*29*	*/each*	*113*
		9920.01	*Painting: Interior*					
			Paint Wd Door & Metal Frame & Prep	11.00 each	926	173	99.97 /each	1,100
			Refinish & Stain Exist Door	37.00 each	5,055	256	143.56 /each	5,312
			Paint Int CMU Spray p+2ct	1,658.00 sqft	1,562	463	1.22 /sqft	2,026
			Painting: Interior		*7,544*	*893*	*/sqft*	*8,437*
		12380.01	*Display Casework*					
			Display case 7' h Doors	9.00 lnft	321	2,619	326.66 /lnft	2,940
			Display Casework		*321*	*2,619*	*/lnft*	*2,940*
			5A		***70,969***	***13,012***		***88,612***
	5AA							
		2071.01	*Demo: General*					
			General Disposal	0.10 cuyd	2	-	27.30 /cuyd	3
			Demo: General		*2*		*/cuyd*	*3*
		2088.01	*Demo: Finishes, Floors*					
			Remove Expansion Joint	8.00 lnft	642	-	80.28 /lnft	642
			Demo: Finishes, Floors		*642*		*/sqft*	*642*
		5810.01	*Expansion Joint*					
			Embedded Floor Joint 2" Alum	8.00 lnft	164	197	45.13 /lnft	361
			Expansion Joint		*164*	*197*	*/lnft*	*361*
			5AA		***809***	***197***		***1,006***
	5B							
		2071.01	*Demo: General*					
			General Disposal	98.70 cuyd	2,033	-	27.17 /cuyd	2,681
			Demo: General		*2,033*		*/cuyd*	*2,681*
		2080.01	*Demo: Millwork*					
			Remove Casework	397.00 lnft	2,072	-	5.22 /lnft	2,072
			Demo: Millwork		*2,072*		*/sqft*	*2,072*
		2088.60	*Demo: Plumbing*					
			Remove Sink	47.00 each	5,773	-	122.84 /each	5,773
			Demo: Plumbing		*5,773*		*/sqft*	*5,773*
		6015.00	*Fasteners: Frame Anchors*					

Location	Bid Item	Phase	Description	Takeoff Quantity	Labor Amount	Material Amount	Total Cost/Unit	Total Amount
		6015.00	*Fasteners: Frame Anchors*					
			Fastners & Misc	1.00 lsum	-	3	2.53 /lsum	3
			Fasteners: Frame Anchors			*3*	*/each*	*3*
		6113.20	*Blocking: Misc.*					
			Blocking 2 x 6 R.L.	409.00 lnft	1,405	277	4.11 /lnft	1,682
			Blocking: Misc.		*1,405*	*277*	*/mbf*	*1,682*
		6410.00	*I Trim: Cabinets*					
			Modify HC Casework	5.00 lnft	945	820	352.85 /lnft	1,764
			I Trim: Cabinets		*945*	*820*	*/lnft*	*1,764*
		11600.00	*Equip: Laboratory/Science*					
			Science Casework Base & Top	236.00 lnft	24,089	72,867	410.83 /lnft	96,956
			Science Casework Lecture Bench	60.00 lnft	8,082	20,660	479.04 /lnft	28,742
			Equip: Laboratory/Science		*32,172*	*93,527*	*/lnft*	*125,699*
		12350.00	*Casework*					
			School Casework Base & Top	113.00 lnft	11,377	27,711	345.91 /lnft	39,088
			Casework		*11,377*	*27,711*	*/lnft*	*39,088*
			5B		***55,777***	***122,336***		***178,762***
	5BB							
		9510.60	*Ceiling: 2x2 Tile*					
			MinFbr Tegulr Std 2x2 3/4" < 250 sf	64.00 sqft	190	251	6.89 /sqft	441
			Ceiling: 2x2 Tile		*190*	*251*	*/sqft*	*441*
		9660.01	*Flooring Resilient Tile*					
			Radial Rubber Floor 3/16"	64.00 sqft	446	582	16.07 /sqft	1,028
			Flooring Resilient Tile		*446*	*582*	*/sqft*	*1,028*
		14001.00	*Elevators*					
			Controls Auto	2.00 lsum	-	10,099	5,049.38 /lsum	10,099
			Walls Stainless Steel	1.00 lsum	-	3,658	3,658.07 /lsum	3,658
			Elevators			*13,757*	*/each*	*13,757*
			5BB		***636***	***14,590***		***15,226***
	5D							
		2071.01	*Demo: General*					
			General Disposal	1.60 cuyd	33	-	27.17 /cuyd	43
			Demo: General		*33*		*/cuyd*	*43*
		2088.60	*Demo: Plumbing*					
			Remove Drinking Fountain	11.00 each	1,801	-	163.74 /each	1,801
			Demo: Plumbing		*1,801*		*/sqft*	*1,801*
			5D		***1,834***			***1,845***
	5E							
		2084.50	*Demo: Misc Items*					
			Remove TV	16.00 each	963	-	60.21 /each	963
			Demo: Misc Items		*963*		*/sqft*	*963*
			5E		***963***			***963***
	5F							
		2071.01	*Demo: General*					
			General Disposal	3.20 cuyd	66	-	27.17 /cuyd	87
			Demo: General		*66*		*/cuyd*	*87*
		2077.00	*Demo: Steel*					
			Remove Steel Rail	342.00 lnft	3,432	-	10.04 /lnft	3,432
			Demo: Steel		*3,432*		*/each*	*3,432*
		5510.80	*Stairs: Stair Parts*					
			Stair Railing Galv 1-1/2" 2 pipe	32.00 lnft	809	1,763	81.64 /lnft	2,613
			Stair Railing Steel 1-1/2" 6 pipe	210.00 lnft	12,454	20,452	159.65 /lnft	33,527
			Wall Rail Steel 1-1/2" 1 pipe	100.00 lnft	2,562	2,065	47.56 /lnft	4,756
			Retrofit Top Rail	88.00 lnft	2,430	1,884	50.38 /lnft	4,433
			Stairs: Stair Parts		*18,254*	*26,164*	*/flt*	*45,329*
		9910.01	*Painting: Exterior*					
			Paint Ext Stair Pipe 2 Rails	32.00 lnft	85	15	3.13 /lnft	100
			Painting: Exterior		*85*	*15*	*/sqft*	*100*
		9920.01	*Painting: Interior*					
			Paint Int Pipe Rails	1,448.00 lnft	1,861	313	1.50 /lnft	2,174
			Painting: Interior		*1,861*	*313*	*/sqft*	*2,174*
			5F		***23,698***	***26,491***		***51,121***
	5G							
		2071.01	*Demo: General*					
			General Disposal	10.20 cuyd	210	-	27.17 /cuyd	277
			Demo: General		*210*		*/cuyd*	*277*
		2084.50	*Demo: Misc Items*					
			Remove Toilet Partitions	6.00 each	482	-	80.28 /each	482
			Remove Toilet Accessories	216.00 each	2,167	-	10.04 /each	2,167
			Demo: Misc Items		*2,649*		*/sqft*	*2,649*
		6015.00	*Fasteners: Frame Anchors*					
			Fastners & Misc	1.00 lsum	-	18	17.79 /lsum	18
			Fasteners: Frame Anchors			*18*	*/each*	*18*
		6113.20	*Blocking: Misc.*					
			Block Toilet Partition	3.00 each	90	36	42.05 /each	126

Location	Bid Item	Phase	Description	Takeoff Quantity	Labor Amount	Material Amount	Total Cost/Unit	Total Amount
		6113.20	*Blocking: Misc.*					
			Block H.C. Toilet Partition	3.00 each	136	44	59.95 /each	180
			Block Misc Toilet Accessories	347.00 each	6,275	1,742	23.10 /each	8,016
			Blocking: Misc.		*6,501*	*1,822*	*/mbf*	*8,322*
		10160.02	*Toilet Partition Phenolic*					
			Toilet Partition HC Flr Mtd	15.00 each	3,179	25,063	1,882.78 /each	28,242
			Toilet Partition Phenolic		*3,179*	*25,063*	*/each*	*28,242*
		10800.01	*Toilet Accessories*					
			Grab Bar 1-1/4" S.S. 36"	20.00 each	723	779	75.11 /each	1,502
			Mirror 18" x 30" S.S.	60.00 each	2,821	4,814	127.25 /each	7,635
			Sanitary Napkin Dispenser Recessed	8.00 each	386	8,284	1,083.73 /each	8,670
			Clothes Hook Single	46.00 each	923	883	39.26 /each	1,806
			Soap Dispenser	60.00 each	4,340	12,427	279.44 /each	16,766
			Stainless Steel Shelf	90.00 lnft	1,481	3,425	54.51 /lnft	4,906
			Toilet Tissue Disp Dbl	71.00 each	2,138	1,953	57.62 /each	4,091
			Towel Dispenser Surface Mtd	17.00 each	769	915	99.02 /each	1,683
			Towel Disp/Waste Recpt	15.00 each	2,170	10,158	821.89 /each	12,328
			Toilet Accessories		*15,750*	*43,638*	*/each*	*59,388*
			5G		***28,289***	***70,540***		***98,896***
	5GG							
		2071.01	*Demo: General*					
			General Disposal	5.30 cuyd	109	-	27.17 /cuyd	144
			Demo: General		*109*		*/cuyd*	*144*
		2080.01	*Demo: Millwork*					
			Remove Casework	34.00 lnft	177	-	5.22 /lnft	177
			Demo: Millwork		*177*		*/sqft*	*177*
		6113.20	*Blocking: Misc.*					
			Blocking 2 x 6 R.L.	34.00 lnft	117	23	4.11 /lnft	140
			Blocking: Misc.		*117*	*23*	*/mbf*	*140*
		12620.00	*Furniture*					
			Reception Desk	34.00 lnft	3,514	20,304	700.53 /lnft	23,818
			Furniture		*3,514*	*20,304*	*/lnft*	*23,818*
			5GG		***3,917***	***20,327***		***24,279***
	5H							
		2071.01	*Demo: General*					
			General Disposal	92.00 cuyd	1,895	-	27.17 /cuyd	2,499
			Demo: General		*1,895*		*/cuyd*	*2,499*
		2075.00	*Demo: Concrete*					
			Saw Concrete Slab to 6"	236.00 lnft	1,287	-	7.56 /lnft	1,784
			Chip out Slab	208.00 sqft	2,571	19	14.12 /sqft	2,936
			Demo: Concrete		*3,858*	*19*	*/cuyd*	*4,720*
		2076.00	*Demo: Masonry*					
			Remove CMU 6"	2,352.00 sqft	8,575	-	3.97 /sqft	9,328
			Demo: Masonry		*8,575*		*/cuft*	*9,328*
		2084.50	*Demo: Misc Items*					
			Remove Toilet Partitions	17.00 each	1,365	-	80.28 /each	1,365
			Remove Urinal Screen	10.00 each	562	-	56.19 /each	562
			Remove Toilet Accessories	66.00 each	662	-	10.04 /each	662
			Demo: Misc Items		*2,589*		*/sqft*	*2,589*
		2088.01	*Demo: Finishes, Floors*					
			Remove Ceramic Tile Floor	1,416.00 sqft	2,614	-	1.85 /sqft	2,614
			Flash Patch @ Wall Removal	196.00 sqft	451	413	4.41 /sqft	865
			Demo: Finishes, Floors		*3,066*	*413*	*/sqft*	*3,479*
		2088.50	*Demo: Finishes, Ceilings*					
			Remove Plaster Ceiling Metal Lath	1,416.00 sqft	3,183	-	2.25 /sqft	3,183
			Demo: Finishes, Ceilings		*3,183*		*/sqft*	*3,183*
		2088.60	*Demo: Plumbing*					
			Remove Sink	18.00 each	2,211	-	122.84 /each	2,211
			Remove Water Closet	17.00 each	2,387	-	140.40 /each	2,387
			Remove Urinal	7.00 each	1,720	-	245.68 /each	1,720
			Demo: Plumbing		*6,318*		*/sqft*	*6,318*
		3310.01	*Conc: Slabs On Grade*					
			Patch Conc. Slab Trench etc.	208.00 sqft	1,127	2,458	17.24 /sqft	3,585
			Conc: Slabs On Grade		*1,127*	*2,458*	*/cuyd*	*3,585*
		4050.10	*Misc: Scaffold*					
			Interior Scaffold	2,352.00 sqft	2,615	986	1.77 /sqft	4,162
			Misc: Scaffold		*2,615*	*986*	*/sqft*	*4,162*
		4050.15	*Misc: Material Handling*					
			Concrete Block	3.00 m	-	-	243.91 /m	732
			Misc: Material Handling				*/m*	*732*
		4105.00	*Mortar: All Types*					
			Mortar Type "N"	4.51 cuyd	547	977	337.95 /cuyd	1,524
			Mortar: All Types		*547*	*977*	*/cuyd*	*1,524*
		4110.01	*Mortar: Grout Fill Conc*					
			Grout Fill 3000 psi,1/2" Gravl	1.94 cuyd	546	373	494.59 /cuyd	960
			Grout Single Door Frame	7.00 each	445	143	88.72 /each	621

Location	Bid Item	Phase	Description	Takeoff Quantity	Labor Amount	Material Amount	Total Cost/Unit	Total Amount
			Mortar: Grout Fill Conc		*992*	*516*	*/cuyd*	*1,581*
		4157.00	*Reinforce: Vertical Wall*					
			Re-Bar #5 & #6	425.54 lbs	860	454	3.09 /lbs	1,314
			Reinforce: Vertical Wall		*860*	*454*	*/lbs*	*1,314*
		4158.00	*Reinforce: Horizontl Wall*					
			Horiz Wall Reinf 6" Hot Dippd	1.64 mlf	730	280	615.57 /mlf	1,010
			Reinforce: Horizontl Wall		*730*	*280*	*/mlf*	*1,010*
		4221.20	*Conc. Block: 6"*					
			Blk 6" Standard Face Reg Wt	2,274.00 each	27,805	5,108	14.47 /each	32,914
			Conc. Block: 6"		*27,805*	*5,108*	*/each*	*32,914*
		4221.50	*Conc. Block: 6" Lintel*					
			Lintel 6" Stand Face Reg Wt	162.00 each	3,010	1,064	26.60 /each	4,309
			Conc. Block: 6" Lintel		*3,010*	*1,064*	*/each*	*4,309*
		5510.35	*Misc: Bolt On Material*					
			Angle Bolted To Masonry	715.00 lb	2,527	2,152	6.74 /lb	4,820
			Misc: Bolt On Material		*2,527*	*2,152*	*/lbs*	*4,820*
		6113.20	*Blocking: Misc.*					
			Block Toilet Partition	17.00 each	512	203	42.05 /each	715
			Block H.C. Toilet Partition	7.00 each	316	103	59.95 /each	420
			Block Misc Toilet Accessories	101.00 each	1,826	507	23.10 /each	2,333
			Blocking: Misc.		*2,655*	*813*	*/mbf*	*3,468*
		6113.40	*Blocking: Rough Bucks*					
			Rough Bucks 2 x 6 Doors	129.00 lnft	323	87	3.18 /lnft	410
			Blocking: Rough Bucks		*323*	*87*	*/mbf*	*410*
		7910.01	*Sealant - Jt Filler Gaskt*					
			Polysulfide Sealant 1/4" Interior	129.00 lnft	1,210	29	9.60 /lnft	1,239
			Sealant - Jt Filler Gaskt		*1,210*	*29*	*/lnft*	*1,239*
		8110.01	*Doors: Steel with Frames*					
			H.M. Frame 18ga Interior Single	7.00 each	692	1,210	271.72 /each	1,902
			Doors: Steel with Frames		*692*	*1,210*	*/each*	*1,902*
		8210.01	*Doors: Wood*					
			Door M Core 3-0 x 7-0 Louver	7.00 each	966	3,487	636.03 /each	4,452
			Doors: Wood		*966*	*3,487*	*/each*	*4,452*
		8710.01	*Hardware: Finishing*					
			Finishing Hardware Int Budget w Closure	7.00 each	949	5,586	933.56 /each	6,535
			Hardware: Finishing		*949*	*5,586*	*/set*	*6,535*
		9210.01	*Lath/Plastr: Gyp Plaster*					
			Plaster Patch @ Wall Removal	168.00 sqft	2,797	298	18.83 /sqft	3,164
			Plaster Patch Ceiling @ Wall Removal	188.00 sqft	1,022	300	7.17 /sqft	1,349
			Lath/Plastr: Gyp Plaster		*3,819*	*598*	*/sqft*	*4,512*
		9253.10	*GWB: Fasteners*					
			Misc. Accessories	1.00 lsum	334	123	457.00 /lsum	457
			GWB: Fasteners		*334*	*123*	*/each*	*457*
		9253.30	*GWB: Boards & Sheathing*					
			GWB 5/8" Water Resistant Clgs	1,416.00 sqft	1,313	614	1.36 /sqft	1,926
			GWB: Boards & Sheathing		*1,313*	*614*	*/sqft*	*1,926*
		9254.00	*GWB: Finish Mud/Tape*					
			Labor GWB Ceiling Finish	1,416.00 sqft	1,577	108	1.19 /sqft	1,685
			GWB: Finish Mud/Tape		*1,577*	*108*	*/sqft*	*1,685*
		9310.01	*Ceramic Tile*					
			Ceramic Tile Floor Grade 2	1,416.00 sqft	19,724	8,599	20.00 /sqft	28,323
			Ceramic Trim: Cove Base	376.00 lnft	9,633	1,639	29.98 /lnft	11,272
			Ceramic Tile		*29,358*	*10,237*	*/sqft*	*39,595*
		9510.10	*Ceiling: Susp. System*					
			Susp Clg 1-1/2" Channel	1,416.00 sqft	4,754	2,213	4.92 /sqft	6,967
			Ceiling: Susp. System		*4,754*	*2,213*	*/sqft*	*6,967*
		9920.01	*Painting: Interior*					
			Paint Wd Door & Metal Frame	7.00 each	491	100	84.46 /each	591
			Epoxy Paint GDW Clg	1,416.00 sqft	3,275	1,115	3.10 /sqft	4,391
			Paint Int CMU Spray p+2ct	3,313.00 sqft	3,122	926	1.22 /sqft	4,048
			Epoxy Paint Int CMU	3,473.00 sqft	8,034	2,912	3.15 /sqft	10,946
			Epoxy Paint Exist Int CMU	3,460.00 sqft	5,039	1,934	2.02 /sqft	6,974
			Painting: Interior		*19,961*	*6,988*	*/sqft*	*26,950*
		10160.02	*Toilet Partition Phenolic*					
			Toilet Partition Reg Flr Mtd	10.00 each	2,119	14,510	1,662.96 /each	16,630
			Toilet Partition HC Flr Mtd	7.00 each	1,484	11,696	1,882.78 /each	13,179
			Urinal Screens Wall Hung	7.00 each	1,038	3,255	613.38 /each	4,294
			Toilet Partition Phenolic		*4,641*	*29,461*	*/each*	*34,103*
		10800.01	*Toilet Accessories*					
			Grab Bar 1-1/4" S.S. 36"	14.00 each	506	545	75.11 /each	1,052
			Mirror 18" x 30" S.S.	18.00 each	846	1,444	127.25 /each	2,291
			Soap Dispenser	18.00 each	1,302	3,728	279.44 /each	5,030
			Stainless Steel Shelf	27.00 lnft	444	1,027	54.51 /lnft	1,472
			Toilet Tissue Disp Dbl	17.00 each	512	468	57.62 /each	979
			Towel Disp/Waste Recpt	7.00 each	1,013	4,741	821.89 /each	5,753
			Toilet Accessories		*4,623*	*11,953*	*/each*	*16,577*

Location	Bid Item	Phase	Description	Takeoff Quantity	Labor Amount	Material Amount	Total Cost/Unit	Total Amount
					146,871	***87,933***		***238,843***
	5HH							
		2071.01	*Demo: General*					
			General Disposal	0.40 cuyd	8	-	27.18 /cuyd	11
			Demo: General		*8*		*/cuyd*	*11*
		2088.01	*Demo: Finishes, Floors*					
			Remove Expansion Joint	45.00 lnft	3,612	-	80.28 /lnft	3,612
			Demo: Finishes, Floors		*3,612*		*/sqft*	*3,612*
		9685.00	*Flooring Carpet*					
			Vinyl Reducer Strip	45.00 lnft	222	212	9.65 /lnft	434
			Flooring Carpet		*222*	*212*	*/sqyd*	*434*
			5HH		***3,843***	***212***		***4,057***
	5JJ							
		2084.50	*Demo: Misc Items*					
			Relocate Fire Blanket	4.00 each	1,124	-	280.97 /each	1,124
			Demo: Misc Items		*1,124*		*/sqft*	*1,124*
			5JJ		***1,124***			***1,124***
	5K							
		2071.01	*Demo: General*					
			General Disposal	0.10 cuyd	2	-	27.20 /cuyd	3
			Shore - Screw Jack	1.00 each	1,064	68	1,196.83 /each	1,197
			Demo: General		*1,066*	*68*	*/cuyd*	*1,200*
		2076.00	*Demo: Masonry*					
			Cut Out Opng 6" CMU	7.00 sqft	200	-	31.02 /sqft	217
			Sawcut 6" CMU	8.00 lnft	226	-	46.49 /lnft	372
			Tooth Jambs 1 Wythe	7.00 lnft	216	-	30.89 /lnft	216
			Demo: Masonry		*642*		*/cuft*	*805*
		4110.01	*Mortar: Grout Fill Conc*					
			Grout Single Door Frame	1.00 each	64	20	88.71 /each	89
			Mortar: Grout Fill Conc		*64*	*20*	*/cuyd*	*89*
		6113.20	*Blocking: Misc.*					
			Blocking 2 x 6 R.L.	17.00 lnft	58	12	4.11 /lnft	70
			Blocking: Misc.		*58*	*12*	*/mbf*	*70*
		7910.01	*Sealant - Jt Filler Gaskt*					
			Polysulfide Sealant 1/4" Interior	17.00 lnft	159	4	9.61 /lnft	163
			Sealant - Jt Filler Gaskt		*159*	*4*	*/lnft*	*163*
		8110.01	*Doors: Steel with Frames*					
			H.M. Frame 18ga Interior Single	1.00 each	99	173	271.72 /each	272
			Doors: Steel with Frames		*99*	*173*	*/each*	*272*
		8210.01	*Doors: Wood*					
			Door M Core 3-0 x 7-0 Vision	1.00 each	130	426	555.91 /each	556
			Doors: Wood		*130*	*426*	*/each*	*556*
		8710.01	*Hardware: Finishing*					
			Finishing Hardware Int Budget w Closure	1.00 each	136	798	933.57 /each	934
			Hardware: Finishing		*136*	*798*	*/set*	*934*
		9920.01	*Painting: Interior*					
			Paint Wd Door & Metal Frame	1.00 each	70	14	84.46 /each	84
			Painting: Interior		*70*	*14*	*/sqft*	*84*
			5K		***2,425***	***1,515***		***4,172***
	5L							
		2071.01	*Demo: General*					
			General Disposal	0.30 cuyd	6	-	27.13 /cuyd	8
			Demo: General		*6*		*/cuyd*	*8*
		2075.00	*Demo: Concrete*					
			Saw Concrete Slab to 6"	20.00 lnft	109	-	7.56 /lnft	151
			Chip out Slab	24.00 sqft	297	2	14.12 /sqft	339
			Demo: Concrete		*406*	*2*	*/cuyd*	*490*
		14405.00	*Lifts*					
			Lift Commercial	1.00 each	2,989	15,344	18,490.09 /each	18,490
			Lifts		*2,989*	*15,344*	*/each*	*18,490*
			5L		***3,401***	***15,346***		***18,988***
	5M							
		2071.01	*Demo: General*					
			General Disposal	2.80 cuyd	58	-	27.16 /cuyd	76
			Demo: General		*58*		*/cuyd*	*76*
		2077.00	*Demo: Steel*					
			Remove Steel Rail	304.00 lnft	3,051	-	10.04 /lnft	3,051
			Demo: Steel		*3,051*		*/each*	*3,051*
		5510.80	*Stairs: Stair Parts*					
			Wall Rail Steel 1-1/2" 1 pipe	134.00 lnft	3,433	2,767	47.56 /lnft	6,373
			Wall Railing Steel 1-1/2" 2 Pipe	70.00 lnft	2,528	2,691	76.35 /lnft	5,344
			Wall Rail Steel Galv 1-1/2" 2 pipe	80.00 lnft	2,907	3,624	83.43 /lnft	6,674
			Ornamental Steel Well Rail Mid	100.00 lnft	8,360	25,685	344.64 /lnft	34,464
			Stairs: Stair Parts		*17,227*	*34,766*	*/flt*	*52,855*
		9910.01	*Painting: Exterior*					

Location	Bid Item	Phase	Description	Takeoff Quantity	Labor Amount	Material Amount	Total Cost/Unit	Total Amount
		9910.01	*Painting: Exterior*					
			Paint Ext Stair Pipe 2 Rails	80.00 lnft	212	38	3.13 /lnft	250
			Painting: Exterior		*212*	*38*	*/sqft*	*250*
		9920.01	*Painting: Interior*					
			Paint Int Pipe Rails	874.00 lnft	1,123	189	1.50 /lnft	1,312
			Painting: Interior		*1,123*	*189*	*/sqft*	*1,312*
			5M		***21,671***	***34,993***		***57,544***
	5MM							
		2071.01	*Demo: General*					
			General Disposal	0.70 cuyd	14	-	27.16 /cuyd	19
			Demo: General		*14*		*/cuyd*	*19*
		2084.01	*Demo: Doors & Windows*					
			Remove Door & Frame Int Single	4.00 each	450	-	127.51 /each	510
			Demo: Doors & Windows		*450*		*/each*	*510*
		4050.15	*Misc: Material Handling*					
			Concrete Block	0.10 m	-	-	262.81 /m	25
			Misc: Material Handling				*/m*	*25*
		4105.00	*Mortar: All Types*					
			Mortar Type "N"	0.27 cuyd	33	58	338.00 /cuyd	91
			Mortar: All Types		*33*	*58*	*/cuyd*	*91*
		4110.01	*Mortar: Grout Fill Conc*					
			Grout Fill 3000 psi,1/2" Gravl	0.43 cuyd	121	83	494.80 /cuyd	213
			Mortar: Grout Fill Conc		*121*	*83*	*/cuyd*	*213*
		4157.00	*Reinforce: Vertical Wall*					
			Re-Bar #5 & #6	29.20 lbs	59	31	3.09 /lbs	90
			Reinforce: Vertical Wall		*59*	*31*	*/lbs*	*90*
		4158.00	*Reinforce: Horizontl Wall*					
			Horiz Wall Reinf 8" Hot Dippd	0.07 mlf	42	13	782.70 /mlf	55
			Reinforce: Horizontl Wall		*42*	*13*	*/mlf*	*55*
		4221.15	*Conc. Block: 8"*					
			Blk 8" Standard Face Reg Wt - Infill	96.00 each	1,864	241	21.92 /each	2,105
			Conc. Block: 8"		*1,864*	*241*	*/each*	*2,105*
			5MM		***2,583***	***426***		***3,108***
	5N							
		2071.01	*Demo: General*					
			General Disposal	7.50 cuyd	154	-	27.17 /cuyd	204
			Demo: General		*154*		*/cuyd*	*204*
		2075.00	*Demo: Concrete*					
			Saw Concrete Slab to 6"	32.00 lnft	174	-	7.56 /lnft	242
			Remove Slab on Grade	454.00 sqft	3,126	-	7.51 /sqft	3,411
			Remove Ramp	178.00 sqft	1,860	-	11.40 /sqft	2,030
			Demo: Concrete		*5,161*		*/cuyd*	*5,682*
		3131.00	*Forms: Ramps*					
			Ramp Forms 2 use	504.00 lnft	3,986	897	9.69 /lnft	4,883
			Forms: Ramps		*3,986*	*897*	*/lnft*	*4,883*
		3136.00	*Forms: Stairs*					
			Stair Forms	63.00 sqft	1,120	258	21.88 /sqft	1,378
			Forms: Stairs		*1,120*	*258*	*/sqft*	*1,378*
		3215.10	*Rebar: Steps & Stairs*					
			Step-Stair Rebar #5	0.01 ton	24	23	4,729.00 /ton	47
			Rebar: Steps & Stairs		*24*	*23*	*/ton*	*47*
		3225.00	*Rebar: WWM @ Ramp/Misc*					
			Wiremesh - Ramp 6x6 6/6	14.54 sqs	1,005	740	120.00 /sqs	1,745
			Rebar: WWM @ Ramp/Misc		*1,005*	*740*	*/sqs*	*1,745*
		3228.00	*Rebar: Wiremesh @ Steps*					
			Wiremesh @ Steps 6x6 6/6	0.50 sqs	36	25	122.06 /sqs	61
			Rebar: Wiremesh @ Steps		*36*	*25*	*/sqs*	*61*
		3309.50	*Conc: Ramps*					
			Ramp Conc 4000 psi	26.93 cuyd	1,238	3,818	196.97 /cuyd	5,304
			Conc: Ramps		*1,238*	*3,818*	*/cuyd*	*5,304*
		3314.00	*Conc: Stairs & Steps*					
			Stair/Step Conc 4000 psi	1.40 cuyd	49	189	177.94 /cuyd	249
			Conc: Stairs & Steps		*49*	*189*	*/cuyd*	*249*
		3375.00	*Finish: Protect & Cure*					
			Cure Conc w/burlap Ext Stair	0.40 sqs	10	5	37.45 /sqs	15
			Cure Conc w/burlap Ramp	14.54 sqs	374	171	37.43 /sqs	544
			Finish: Protect & Cure		*384*	*175*	*/sqs*	*559*
		3380.01	*Finish: General*					
			Broom/Float Finish Ramp	1,390.00 sqft	1,224	-	0.88 /sqft	1,224
			Stair Finish	40.00 sqft	108	0	2.71 /sqft	109
			Rub Risers	15.00 lnft	61	1	4.14 /lnft	62
			Finish: General		*1,393*	*1*	*/sqft*	*1,395*
		5510.80	*Stairs: Stair Parts*					
			Stair Railing Galv 1-1/2" 2 pipe	208.00 lnft	5,260	11,457	81.64 /lnft	16,981
			Stairs: Stair Parts		*5,260*	*11,457*	*/flt*	*16,981*
		9910.01	*Painting: Exterior*					

Location	Bid Item	Phase	Description	Takeoff Quantity	Labor Amount	Material Amount	Total Cost/Unit	Total Amount
		9910.01	*Painting: Exterior*					
			Paint Ext Stair Hand 1 Rail	416.00 lnft	606	116	1.74 /lnft	722
			Painting: Exterior		*606*	*116*	*/sqft*	*722*
			5N		***20,418***	***17,700***		***39,211***
	5NNN							
		2071.01	*Demo: General*					
			General Disposal	11.70 cuyd	241	-	26.93 /cuyd	315
			Demo: General		*241*		*/cuyd*	*315*
		2084.50	*Demo: Misc Items*					
			Remove Lockers	37.00 each	849	-	22.96 /each	849
			Remove Benches	409.00 lnft	4,104	-	10.04 /lnft	4,104
			Demo: Misc Items		*4,954*		*/sqft*	*4,954*
		6113.20	*Blocking: Misc.*					
			Blocking 2 x 6 R.L.	37.00 lnft	127	25	4.11 /lnft	152
			Blocking: Misc.		*127*	*25*	*/mbf*	*152*
		10505.90	*Lockers*					
			Locker HC Single Tier 6'	37.00 each	5,473	11,659	463.04 /each	17,132
			Locker: Bench	409.00 lnft	7,053	12,316	47.36 /lnft	19,369
			Lockers		*12,526*	*23,975*	*/each*	*36,502*
			5NNN		***17,848***	***24,000***		***41,922***
	5P							
		2071.01	*Demo: General*					
			General Disposal	0.10 cuyd	2	-	27.10 /cuyd	3
			Demo: General		*2*		*/cuyd*	*3*
		2084.01	*Demo: Doors & Windows*					
			Remove Hardware	2.00 each	90	-	45.21 /each	90
			Demo: Doors & Windows		*90*		*/each*	*90*
		8710.01	*Hardware: Finishing*					
			Finishing Hardware Ext Budget	1.00 each	226	1,203	1,429.30 /each	1,429
			Finishing Hardware Int Budget w Closure	1.00 each	136	798	933.56 /each	934
			Hardware: Finishing		*362*	*2,001*	*/set*	*2,363*
			5P		***454***	***2,001***		***2,456***
	5X							
		2071.01	*Demo: General*					
			General Disposal	3.60 cuyd	74	-	27.17 /cuyd	98
			Demo: General		*74*		*/cuyd*	*98*
		2080.01	*Demo: Millwork*					
			Remove Casework	16.00 lnft	83	-	5.22 /lnft	83
			Demo: Millwork		*83*		*/sqft*	*83*
		6113.20	*Blocking: Misc.*					
			Blocking 2 x 6 R.L.	16.00 lnft	55	11	4.11 /lnft	66
			Blocking: Misc.		*55*	*11*	*/mbf*	*66*
		12350.00	*Casework*					
			School Casework Base & Top	16.00 lnft	1,611	3,924	345.91 /lnft	5,535
			Casework		*1,611*	*3,924*	*/lnft*	*5,535*
			5X		***1,824***	***3,934***		***5,782***
	5Z							
		12620.00	*Furniture*					
			Modify Reception Desk	6.00 lnft	2,015	3,225	873.35 /lnft	5,240
			Furniture		*2,015*	*3,225*	*/lnft*	*5,240*
			5Z		***2,015***	***3,225***		***5,240***
			5 HC ACCESS		**411,368**	**458,780**		**883,158**
6 FINISHES GEN								
	6A							
		2071.01	*Demo: General*					
			General Disposal	47.60 cuyd	980	-	27.17 /cuyd	1,293
			Demo: General		*980*		*/cuyd*	*1,293*
		2088.50	*Demo: Finishes, Ceilings*					
			Remove Acoust Tile	5,135.00 sqft	11,130	-	2.17 /sqft	11,130
			Demo: Finishes, Ceilings		*11,130*		*/sqft*	*11,130*
		9510.60	*Ceiling: 2x2 Tile*					
			Re-Install & Clean 2x2 3/4" 250 - 500 sf	5,135.00 sqft	11,662		2.27 /sqft	11,662
			Ceiling: 2x2 Tile		*11,662*		*/sqft*	*11,662*
			6A		***23,772***			***24,085***
	6AAA							
		2088.21	*Demo: Finishes, Walls*					
			Rem Ceramic Tile But No Studs	40.00 sqft	87	-	2.17 /sqft	87
			Demo: Finishes, Walls		*87*		*/sqft*	*87*
		9310.01	*Ceramic Tile*					
			Patch Ceramic Wall Tile	40.00 sqft	642	193	20.88 /sqft	835
			Ceramic Tile		*642*	*193*	*/sqft*	*835*

Location	Bid Item	Phase	Description	Takeoff Quantity	Labor Amount	Material Amount	Total Cost/Unit	Total Amount
					728	***193***		***922***
	6B							
		4520.01	*Masonry Restoration*					
			Cut & Repoint CMU Hard Mortar	110.00 lnft	1,138	152	14.55 /lnft	1,601
			Cut & Repoint Brick Soft Mortr	10.00 sqft	72	7	9.88 /sqft	99
			Remove Individual Brick Allow	68.00 each	4,572	-	85.37 /each	5,805
			Patch Individual Brick Allow	68.00 each	1,217	98	19.34 /each	1,315
			Remove CMU 8" Allow	124.00 each	7,394	-	64.87 /each	8,043
			Patch in 8" CMU Allow	124.00 each	3,689	331	32.42 /each	4,020
			Masonry Restoration		*18,082*	*588*	*/m*	*20,883*
			6B		***18,082***	***588***		***20,883***
	6BBB							
		8710.01	*Hardware: Finishing*					
			Sound Seal	2.00 each	181	97	138.70 /each	277
			Hardware: Finishing		*181*	*97*	*/set*	*277*
			6BBB		***181***	***97***		***277***
	6CC							
		3328.00	*Conc: Restoration*					
			Patch Concrete Wall	23.00 sqft	312	551	37.50 /sqft	862
			Conc: Restoration		*312*	*551*	*/sqft*	*862*
			6CC		***312***	***551***		***862***
	6CCC							
		2071.01	*Demo: General*					
			General Disposal	0.50 cuyd	10	-	27.18 /cuyd	14
			Demo: General		*10*		*/cuyd*	*14*
		2080.05	*Demo: Roofing*					
			Remove Base Flashing	54.00 sqft	214	-	3.97 /sqft	214
			Demo: Roofing		*214*		*/sqs*	*214*
		7515.10	*Membrane: Base Flashing*					
			Base Flashing Premier	54.00 sqft	202	362	10.43 /sqft	563
			Membrane: Base Flashing		*202*	*362*	*/lnft*	*563*
			6CCC		***426***	***362***		***791***
	6D							
		4520.01	*Masonry Restoration*					
			Cut & Repoint Brick Soft Mortr	482.00 sqft	3,480	347	9.88 /sqft	4,763
			Masonry Restoration		*3,480*	*347*	*/m*	*4,763*
			6D		***3,480***	***347***		***4,763***
	6E							
		2071.01	*Demo: General*					
			General Disposal	0.20 cuyd	4	-	27.20 /cuyd	5
			Demo: General		*4*		*/cuyd*	*5*
		2088.70	*Demo: Mechanical*					
			Remove Louvers	4.00 sqft	46	-	11.48 /sqft	46
			Demo: Mechanical		*46*		*/sqft*	*46*
		5510.05	*Misc: Lintels*					
			Stl Angles 1000 - 2000 lbs	49.00 lb	92	72	3.34 /lb	164
			Misc: Lintels		*92*	*72*	*/lbs*	*164*
		6113.40	*Blocking: Rough Bucks*					
			2 x 6 PT Louvers	10.00 lnft	27	11	3.82 /lnft	38
			Blocking: Rough Bucks		*27*	*11*	*/mbf*	*38*
		7910.01	*Sealant - Jt Filler Gaskt*					
			Backer Rod ½"	10.00 lnft	30	1	3.12 /lnft	31
			Polysulfide Sealant 1/4" Interior	20.00 lnft	188	4	9.61 /lnft	192
			Sealant - Jt Filler Gaskt		*218*	*5*	*/lnft*	*223*
		9920.01	*Painting: Interior*					
			Paint Louvers	4.00 sqft	7	1	2.06 /sqft	8
			Painting: Interior		*7*	*1*	*/sqft*	*8*
		15856.00	*Louvers/Filters*					
			Fixed Blade Stormproof	4.00 sqft	154	177	82.62 /sqft	330
			Louvers/Filters		*154*	*177*	*/sqft*	*330*
			6E		***548***	***266***		***815***
	6G							
		2071.01	*Demo: General*					
			General Disposal	0.20 cuyd	4	-	27.20 /cuyd	5
			Demo: General		*4*		*/cuyd*	*5*
		2079.00	*Demo: Exterior Finishes*					
			Remove Soffit & Trim	12.00 sqft	54	-	4.50 /sqft	54
			Demo: Exterior Finishes		*54*		*/sqft*	*54*
		7620.20	*Sheetmetal: Soffits*					
			Soffit Aluminum	12.00 sqft	145	72	18.14 /sqft	218
			Sheetmetal: Soffits		*145*	*72*	*/sqft*	*218*
			6G		***203***	***72***		***277***
	6GGG							

Location	Bid Item	Phase	Description	Takeoff Quantity	Labor Amount	Material Amount	Total Cost/Unit	Total Amount
		9910.01	*Painting: Exterior*					
			Paint Ext Misc Exposed Metal	144.00 sqft	302	44	2.40 /sqft	346
			Painting: Exterior		*302*	*44*	*/sqft*	*346*
			6GGG		***302***	***44***		***346***
	6H							
		9920.01	*Painting: Interior*					
			Paint Exist Conc Wall roller 2ct	5,648.00 sqft	2,769	502	0.58 /sqft	3,272
			Paint Exist Int CMU Spray 2 ct	619.00 sqft	265	110	0.61 /sqft	375
			Painting: Interior		*3,034*	*612*	*/sqft*	*3,647*
			6H		***3,034***	***612***		***3,647***
	6HH							
		7620.30	*Sheetmetal: Fascia*					
			Refasten Fascia	62.00 lnft	834	0	13.45 /lnft	834
			Sheetmetal: Fascia		*834*		*/lnft*	*834*
			6HH		***834***			***834***
	6HHH							
		2071.01	*Demo: General*					
			General Disposal	1.00 cuyd	21	-	27.17 /cuyd	27
			Demo: General		*21*		*/cuyd*	*27*
		2080.05	*Demo: Roofing*					
			Remove Shingles	10.00 sqft	10	-	0.97 /sqft	10
			Remove Gravel Stop	98.00 lnft	385	-	3.93 /lnft	385
			Demo: Roofing		*395*		*/sqs*	*395*
		7310.00	*Shingles: Asphalt*					
			Patch Premium Class C 300-385 lb	0.10 sqs	53	14	669.90 /sqs	67
			Shingles: Asphalt		*53*	*14*	*/sqs*	*67*
		7312.10	*Shingles: Felt*					
			Patch Roofing Felt 60 lb.	0.11 sq	5	4	83.00 /sq	9
			Shingles: Felt		*5*	*4*	*/sqs*	*9*
		7620.30	*Sheetmetal: Fascia*					
			Fascia Alum 12" Dur Fin	98.00 lnft	804	1,203	20.48 /lnft	2,007
			Sheetmetal: Fascia		*804*	*1,203*	*/lnft*	*2,007*
			6HHH		***1,278***	***1,221***		***2,505***
	6JJJ							
		4710.10	*Cleaning: Masonry*					
			Clean Brick - Acid Graffiti	10.00 sqft	102	6	10.82 /sqft	108
			Cleaning: Masonry		*102*	*6*	*/sqs*	*108*
			6JJJ		***102***	***6***		***108***
	6KKK							
		2071.01	*Demo: General*					
			General Disposal	0.20 cuyd	4	-	27.15 /cuyd	5
			Demo: General		*4*		*/cuyd*	*5*
		2084.01	*Demo: Doors & Windows*					
			Remove Door & Frame Ext Single	1.00 each	128	-	145.73 /each	146
			Demo: Doors & Windows		*128*		*/each*	*146*
		4110.01	*Mortar: Grout Fill Conc*					
			Grout Single Door Frame	1.00 each	64	20	88.71 /each	89
			Mortar: Grout Fill Conc		*64*	*20*	*/cuyd*	*89*
		4156.00	*Access: Wall Flashing*					
			Flash Head Lead Ct. Cop 5 oz.	3.00 sqft	14	14	9.17 /sqft	28
			Access: Wall Flashing		*14*	*14*	*/sqft*	*28*
		6113.40	*Blocking: Rough Bucks*					
			Rough Bucks 2 x 6 PT Doors	17.00 lnft	43	19	3.63 /lnft	62
			Blocking: Rough Bucks		*43*	*19*	*/mbf*	*62*
		7910.01	*Sealant - Jt Filler Gaskt*					
			Backer Rod ½"	17.00 lnft	52	2	3.12 /lnft	53
			Polyurethane Sealant 1/2"	34.00 lnft	324	17	10.02 /lnft	341
			Sealant - Jt Filler Gaskt		*375*	*18*	*/lnft*	*394*
		8110.01	*Doors: Steel with Frames*					
			H.M. Frame 16ga Galv Single	1.00 each	99	206	304.76 /each	305
			H.M. Door Ins 16ga Galv 3-0 x 7-0 Flush	1.00 each	93	504	597.14 /each	597
			Doors: Steel with Frames		*192*	*710*	*/each*	*902*
		8710.01	*Hardware: Finishing*					
			Finishing Hardware Ext Budget	1.00 each	226	1,203	1,429.29 /each	1,429
			Hardware: Finishing		*226*	*1,203*	*/set*	*1,429*
		9910.01	*Painting: Exterior*					
			Paint Ext Door & Frame	1.00 each	77	14	91.34 /each	91
			Painting: Exterior		*77*	*14*	*/sqft*	*91*
			6KKK		***1,123***	***2,000***		***3,146***
	6L							
		4155.00	*Access: Control Joint*					
			Control Jnt Rubber 8" Wall	214.00 lnft	834	791	7.59 /lnft	1,625
			Access: Control Joint		*834*	*791*	*/lnft*	*1,625*
		7910.01	*Sealant - Jt Filler Gaskt*					

Location	Bid Item	Phase	Description	Takeoff Quantity	Labor Amount	Material Amount	Total Cost/Unit	Total Amount
		7910.01	*Sealant - Jt Filler Gaskt*					
			Backer Rod ½"	214.00 lnft	649	20	3.12 /lnft	668
			Polyurethane Sealant 1/2"	214.00 lnft	2,039	106	10.02 /lnft	2,145
			Rake Out Masonry Jt. Filler	214.00 lnft	631	44	4.98 /lnft	1,065
			Sealant - Jt Filler Gaskt		*3,318*	*170*	*/lnft*	*3,878*
			6L		***4,152***	***960***		***5,503***
	6LLL							
		2071.01	*Demo: General*					
			General Disposal	0.70 cuyd	14	-	27.16 /cuyd	19
			Demo: General		*14*		*/cuyd*	*19*
		2079.00	*Demo: Exterior Finishes*					
			Remove Exterior Metal Panels	72.00 sqft	116	-	1.61 /sqft	116
			Demo: Exterior Finishes		*116*		*/sqft*	*116*
		7410.00	*Metal Facing Panels*					
			Metal Facing Panel Ins 18ga	72.00 sqft	562	526	15.11 /sqft	1,088
			Metal Facing Panels		*562*	*526*	*/sqft*	*1,088*
			6LLL		***692***	***526***		***1,222***
	6MM							
		2071.01	*Demo: General*					
			General Disposal	1.50 cuyd	31	-	27.17 /cuyd	41
			Demo: General		*31*		*/cuyd*	*41*
		2084.01	*Demo: Doors & Windows*					
			Remove Door	2.00 each	64	-	32.11 /each	64
			Remove Door & Frame Ext Double	3.00 each	450	-	170.04 /each	510
			Demo: Doors & Windows		*514*		*/each*	*574*
		4110.01	*Mortar: Grout Fill Conc*					
			Grout Double Door Frame	3.00 each	256	86	120.25 /each	361
			Mortar: Grout Fill Conc		*256*	*86*	*/cuyd*	*361*
		4156.00	*Access: Wall Flashing*					
			Flash Head Lead Ct. Cop 5 oz.	18.00 sqft	82	83	9.17 /sqft	165
			Access: Wall Flashing		*82*	*83*	*/sqft*	*165*
		6015.00	*Fasteners: Frame Anchors*					
			Fastners & Misc	1.00 lsum	-	1	1.27 /lsum	1
			Fasteners: Frame Anchors			*1*	*/each*	*1*
		6113.40	*Blocking: Rough Bucks*					
			Rough Bucks 2 x 6 PT Doors	60.00 lnft	150	68	3.63 /lnft	218
			Blocking: Rough Bucks		*150*	*68*	*/mbf*	*218*
		7910.01	*Sealant - Jt Filler Gaskt*					
			Backer Rod ½"	60.00 lnft	182	6	3.12 /lnft	187
			Polyurethane Sealant 1/2"	120.00 lnft	1,143	60	10.02 /lnft	1,203
			Sealant - Jt Filler Gaskt		*1,325*	*65*	*/lnft*	*1,390*
		8110.01	*Doors: Steel with Frames*					
			H.M. Frame 16ga Galv Double	3.00 each	371	739	370.08 /each	1,110
			H.M. Frame Repair Allow	3.00 each	594	259	284.24 /each	853
			H.M. Door Ins 16ga Galv 3-0 x 7-0 Hlf Gl	8.00 each	848	6,119	870.96 /each	6,968
			Doors: Steel with Frames		*1,813*	*7,118*	*/each*	*8,931*
		8710.01	*Hardware: Finishing*					
			Finishing Hardware Ext Budget	8.00 each	1,808	9,626	1,429.30 /each	11,434
			Hardware: Finishing		*1,808*	*9,626*	*/set*	*11,434*
		9910.01	*Painting: Exterior*					
			Paint Ext Door & Frame	8.00 each	617	114	91.34 /each	731
			Painting: Exterior		*617*	*114*	*/sqft*	*731*
			6MM		***6,596***	***17,160***		***23,846***
	6MMM							
		9910.01	*Painting: Exterior*					
			Paint Col Cover	108.00 lnft	111	16	1.18 /lnft	127
			Painting: Exterior		*111*	*16*	*/sqft*	*127*
			6MMM		***111***	***16***		***127***
	6NNN							
		9920.01	*Painting: Interior*					
			Paint Louvers	48.00 sqft	82	16	2.06 /sqft	99
			Painting: Interior		*82*	*16*	*/sqft*	*99*
			6NNN		***82***	***16***		***99***
	6OOO							
		10430.01	*Signs*					
			Interior Custom	49.00 each	2,127	2,936	103.31 /each	5,062
			Signs		*2,127*	*2,936*	*/each*	*5,062*
			6OOO		***2,127***	***2,936***		***5,062***
	6PPP							
		6113.20	*Blocking: Misc.*					
			Blocking 2 x 6 R.L.	16.00 lnft	55	11	4.11 /lnft	66
			Blocking: Misc.		*55*	*11*	*/mbf*	*66*
		11164.00	*Equip: Dock*					
			Dock Bumpers	16.00 lnft	297	792	68.03 /lnft	1,088

Location	Bid Item	Phase	Description	Takeoff Quantity	Labor Amount	Material Amount	Total Cost/Unit	Total Amount
			Equip: Dock		*297*	*792*	*/each*	*1,088*
			6PPP		***352***	***803***		***1,154***
	6Q							
		2071.01	*Demo: General*					
			General Disposal	0.40 cuyd	8	-	27.18 /cuyd	11
			Demo: General		*8*		*/cuyd*	*11*
		2077.00	*Demo: Steel*					
			Remove Wall Expansion Joint	48.00 lnft	381	-	7.95 /lnft	381
			Demo: Steel		*381*		*/each*	*381*
		5810.01	*Expansion Joint*					
			Embedded Wall Expansion Joint	48.00 lnft	1,017	608	33.86 /lnft	1,625
			Expansion Joint		*1,017*	*608*	*/lnft*	*1,625*
			6Q		***1,407***	***608***		***2,018***
	6QQQ							
		6113.20	*Blocking: Misc.*					
			Blocking 2 x 4 R.L.	30.00 lnft	84	14	3.26 /lnft	98
			Blocking: Misc.		*84*	*14*	*/mbf*	*98*
		10110.01	*Chalkboards/Tackboards*					
			Refasten Markerboard Alum Fr	40.00 sqft	130	0	3.25 /sqft	130
			Tackboard Alum Fr	20.00 sqft	65	0	3.25 /sqft	65
			Chalkboards/Tackboards		*195*		*/sqft*	*195*
			6QQQ		***279***	***14***		***293***
	6SS							
		4710.10	*Cleaning: Masonry*					
			Clean Exist Brick Bio Growth	2.86 sqs	1,006	73	376.96 /sqs	1,078
			Cleaning: Masonry		*1,006*	*73*	*/sqs*	*1,078*
			6SS		***1,006***	***73***		***1,078***
	6SSS							
		9560.01	*Flooring Wood Strip*					
			Refinish Wood Floor Mid	1,824.00 sqft	6,003	2,109	4.45 /sqft	8,112
			Flooring Wood Strip		*6,003*	*2,109*	*/sqft*	*8,112*
			6SSS		***6,003***	***2,109***		***8,112***
	6UU							
		2071.01	*Demo: General*					
			General Disposal	2.60 cuyd	54	-	26.93 /cuyd	70
			Demo: General		*54*		*/cuyd*	*70*
		2088.01	*Demo: Finishes, Floors*					
			Remove Rec Floor Matt	284.00 sqft	1,505	-	5.30 /sqft	1,505
			Demo: Finishes, Floors		*1,505*		*/sqft*	*1,505*
		12690.01	*Floor Mats*					
			Entrance Mat Rec 3/8" w Frame	284.00 sqft	2,876	5,846	30.71 /sqft	8,722
			Floor Mats		*2,876*	*5,846*	*/sqft*	*8,722*
			6UU		***4,434***	***5,846***		***10,296***
	6UUU							
		9920.01	*Painting: Interior*					
			Paint Exist GDW Roller 2ct	4,080.00 sqft	2,097	622	0.67 /sqft	2,719
			Painting: Interior		*2,097*	*622*	*/sqft*	*2,719*
			6UUU		***2,097***	***622***		***2,719***
	6VV							
		2071.01	*Demo: General*					
			General Disposal	4.40 cuyd	91	-	27.17 /cuyd	120
			Demo: General		*91*		*/cuyd*	*120*
		2088.01	*Demo: Finishes, Floors*					
			Remove Rubber Base	476.00 lnft	420	-	0.88 /lnft	420
			Demo: Finishes, Floors		*420*		*/sqft*	*420*
		9660.01	*Flooring Resilient Tile*					
			Floor Resil Base 4"	476.00 lnft	691	380	2.25 /lnft	1,071
			Flooring Resilient Tile		*691*	*380*	*/sqft*	*1,071*
			6VV		***1,202***	***380***		***1,611***
	6VVV							
		8710.01	*Hardware: Finishing*					
			Adjust Finishing Hardware Int Budget w Closure	4.00 each	271	0	67.81 /each	271
			Hardware: Finishing		*271*		*/set*	*271*
			6VVV		***271***			***271***
	6W							
		4710.10	*Cleaning: Masonry*					
			Clean Masonry from Water Damage	100.00 sqft	1,025	57	10.82 /sqft	1,082
			Cleaning: Masonry		*1,025*	*57*	*/sqs*	*1,082*
			6W		***1,025***	***57***		***1,082***
	6WW							
		9210.01	*Lath/Plastr: Gyp Plaster*					

Location	Bid Item	Phase	Description	Takeoff Quantity	Labor Amount	Material Amount	Total Cost/Unit	Total Amount
		9210.01	*Lath/Plastr: Gyp Plaster*					
			Plaster Patch Wall	41.00 sqft	683	73	18.83 /sqft	772
			Lath/Plastr: Gyp Plaster		*683*	*73*	*/sqft*	*772*
		9253.10	*GWB: Fasteners*					
			Misc. Accessories	1.00 lsum	9	3	11.81 /lsum	12
			GWB: Fasteners		*9*	*3*	*/each*	*12*
			6WW		***692***	***75***		***784***
	6WWW							
		2071.01	*Demo: General*					
			General Disposal	0.10 cuyd	2	-	27.20 /cuyd	3
			Demo: General		*2*		*/cuyd*	*3*
		2088.01	*Demo: Finishes, Floors*					
			Remove Vinyl Tile	6.00 sqft	8	-	1.28 /sqft	8
			Demo: Finishes, Floors		*8*		*/sqft*	*8*
		3326.00	*Conc: Slurry Coat*					
			Leveling Compound	6.00 sqft	23	11	6.55 /sqft	39
			Conc: Slurry Coat		*23*	*11*	*/sqft*	*39*
		9660.01	*Flooring Resilient Tile*					
			Patch Floor Vinyl Composition Tile 1/8"	6.00 sqft	10	13	3.73 /sqft	22
			Flooring Resilient Tile		*10*	*13*	*/sqft*	*22*
			6WWW		***43***	***24***		***72***
	6XXX							
		6113.20	*Blocking: Misc.*					
			Blocking 2 x 6 R.L.	2.00 lnft	7	1	4.12 /lnft	8
			Blocking: Misc.		*7*	*1*	*/mbf*	*8*
		10505.90	*Lockers*					
			Locker Single Tier 6'	2.00 each	89	152	120.62 /each	241
			Lockers		*89*	*152*	*/each*	*241*
			6XXX		***96***	***154***		***249***
	6Y							
		2071.01	*Demo: General*					
			General Disposal	0.20 cuyd	4	-	27.15 /cuyd	5
			Demo: General		*4*		*/cuyd*	*5*
		2080.05	*Demo: Roofing*					
			Remove Gutter/Downspouts	24.00 lnft	58	-	2.41 /lnft	58
			Demo: Roofing		*58*		*/sqs*	*58*
		7620.15	*Sheetmetal: Guttr DwnSpt*					
			Downspout Copper Circular 5"	24.00 lnft	232	545	32.39 /lnft	777
			Sheetmetal: Guttr DwnSpt		*232*	*545*	*/lnft*	*777*
			6Y		***294***	***545***		***841***
	6YYY							
		8210.01	*Doors: Wood*					
			Door Louver	1.00 each	22	164	185.51 /each	186
			Doors: Wood		*22*	*164*	*/each*	*186*
			6YYY		***22***	***164***		***186***
	6ZZZ							
		9660.01	*Flooring Resilient Tile*					
			Patch Synthetic Gym Floor 1/2"	2,000.00 sqft	21,879	13,926	17.90 /sqft	35,805
			Flooring Resilient Tile		*21,879*	*13,926*	*/sqft*	*35,805*
		9920.01	*Painting: Interior*					
			Paint Floor Lines	1,849.00 lnft	1,742	446	1.18 /lnft	2,189
			Painting: Interior		*1,742*	*446*	*/sqft*	*2,189*
			6ZZZ		***23,622***	***14,372***		***37,994***
			6 FINISHES GEN		**111,008**	**53,820**		**168,882**

Estimate Totals

Labor	1,060,487		10,544.202	hrs
Material	1,199,070			
Equipment	21,593		1,166.657	hrs
	2,281,150	**2,281,150**		
		Total	***2,281,150***	

High School – Food Service Report

December 26, 2008

Mr. David Finney
Design Partnership of Cambridge, Inc.
500 Rutherford Avenue
Charlestown, Massachusetts 02129

Re: Lexington High School Kitchen
Foodservice Facilities Site Evaluation

Introduction

Crabtree McGrath Associates, Inc., a consulting group specializing in foodservice facilities planning and design has been retained by Design Partnership of Cambridge to provide an analysis and recommendations for future modifications to the existing kitchen and serving facilities.

Foodservice Findings

CMA toured the existing kitchen and serving areas on Friday, December 12, 2008 to evaluate the site and operating conditions. The facility is organized into a central kitchen with two serving areas. Serving area one labeled "Com One" is directly adjacent to the kitchen. Serving area two labels as "Com two" is remote to the kitchen but within approximately fifty feet to the kitchen. Both serving areas were renovated about the year 2000.

Serving Areas

- Com one has a pizza service station that lacks the proper temperature maintenance equipment or sneeze guards. Upon closer inspection we found the counter can be easily modified to accommodate the addition of equipment needed to properly serve meals at this service station.
    - In general Com one is in good order. The ceiling finishes, lighting, and wall finished are adequate but some consideration may want to be given to cosmetic repair at certain counters in addition to repairing the pizza serving station.
- Com two has a hot well counter designated to warm and serve hot meals. The hot food wells have since failed and are in need of replacement.
    - In general Com two is in good order but there may be the need for additional hand sinks and the cosmetic upgrade of counters. The ceiling finishes, lighting, and wall finished appear to be adequate though replacement of the hot wells is needed.

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Main Kitchen

Unlike the serving areas the kitchen has never been renovated save the replacement of a few pieces of kitchen equipment and the addition of a walk-in refrigerated freezer. Below is a listing of other deficiencies and considerations for review.

- The ceiling in all areas of the kitchen is open to mechanical equipment above. Pipes, motors, ductwork, and plumbing are visible. As this condition is impossible to keep clean the kitchen is in violation of the public health code. The health code requires that the kitchen ceiling be smooth, washable, and free of unnecessary obstructions.

- Food prep sinks are not code compliant. The health code requires that food prep sinks be indirectly drained meaning air gaps need to be present between the sink drain and the sanitary plumbing system. Some sinks do not have the proper code compliant faucets and the construction of other prep counters and tables are showing signs of failure and corrosion. All counters should be replaced with new counters of fully welded construction and made of 100% stainless steel.

- The office is located deep within the kitchen. This does not allow for oversight of the receiving area and the kitchen operation. Additionally, student wishing to conduct business with the kitchen staff must enter the kitchen environment to reach the office and conduct transactions. This condition increases the potential for injury to non-kitchen personnel. The office should be relocated to an area that allows for the oversight of the receiving area and kitchen and to eliminate the need for non-foodservice staff entering the food production area.

- The dry storage rooms are fragmented into three separate areas. In order to realize a more efficient storage facility storage rooms should be consolidated to one area. Currently in certain storage rooms sanitary lines are running overhead of the food storage and this is in violation of the health code. Lighting fixtures are open to the room and are required to be protected by a shatterproof lens. Lastly, in each room refitting the rooms with new shelving can increase the density of storage and efficiency of used area.

- The pot washing area placement is inconvenient and is an all-manual operation. The modern pot washing area utilizes a ware washing machine. The machine reduces labor costs, uses less water to wash, and cleans and sanitizes the ware more effectively.

- Cooking Line and General Kitchen Conditions
    - The existing exhaust ventilation system is outdated and unable to support newer cooking equipment and is not constructed to current NFPA standards.
        - The length and width of the hood should extend at least 6” beyond the edge of the cooking equipment and 12”-14” over the front of convection ovens.
        - There should be at least 6” of over hood hang on the backside of the equipment.
    - Cooking equipment - convection ovens, steamer and kettles are all aged and in need of replacement and appear to be original to the kitchen. The cooking equipment should be replaced with functional, newer energy efficient units.
        - The cooking equipment in the center of the kitchen is mounted on a fixed curb, which inhibits moving the equipment for cleaning, service, and maintenance. We

recommend removing the curb and mounting all of the equipment on either 6" stainless steel legs or on casters where possible.

- The steam kettles require floor trough in front of them to ease in cleaning and as an efficient way to drain off water from the kettles.

- Sixty-quart mixer - appears to be original equipment. The unit should be retrofitted with safety guards that are common and required on newer units to protect against injury.

- Hand sinks - Additional hand sinks are required. There should be at least one additional hand sink. The health department for hand washing does not approve preparation hand sinks.

- The walk in coolers should be consolidated from four separate units into two total units. Currently each of the four units has a condenser and a unit cooler running 24 hours per day year round consuming more energy than necessary. Throughout the years walk-in freezers were added to compensate for population growth. To consolidate these units would translate into an immediate saving in electrical consumption and drastically increase operational efficiency and inventory control. Additionally, newer motors and monitoring systems will further reduce the amount of energy used to maintain the systems.
  - Two of the older walk-in coolers are constructed of wood. This is a violation of the health code since surfaces in the kitchen must be non absorbent and easy to clean. Wood surfaces in a kitchen environment do not meet this criterion. Additionally the R-value of the aged walls does not meet the efficiency standards of today.
  - One of the older walk-in cooler floors has failed and corrosion is visible. The floor has been replaced once already and the unit will need to be replaced. Rather than unit replacement consolidation is recommended during replacement.

- Floor surfaces - as observed during our visit the floor is showing serious wear in some areas. We found surfaces to be different in parts of the kitchen with unsealed concrete in the receiving area. The floor should be a monolithic assembly with coved corners where the floor meets all walls to facilitate ease of cleaning.

Ways a renovation would conserve energy

- **Open burner ranges** – These units have a minimum of five standing pilot lights. These pilots continue to consume energy even when the units are not in use. We recommend a brand that offers an electronic pilot igniter. The igniter makes it easy to light pilots and encourages staff to totally shut the unit down at the end of the day in an effort to conserve natural gas. *For example a four-burner unit consumes on average 4000 to 6000 btu's per hour, that's more than 21 million btu's per year at an idle operating cost of $249. Additionally, in locations where the code requires the gas to be shut down at the hood when the fan is not running the pilot igniters make it easy to relight pilots at the beginning of each day. Garland and US range are the only quality manufacturers that offer this option but within the next six months others will begin offering the igniter option. The upgrade to the ignition system has a pay-back period of approximately 15 months.

  **The calculation is based on the assumption that the unit is idle for ten hours per day with five pilots burning at a total hourly consumption of 6000 btu's at 365 days per year. This*

equals 21,900,000 btu's per year of idle time consumption. One therm is equal to 100,000 btu's and in New England the cost per therm is $1.14 with an expected increase of 5% in 2009.

- **Walk -in refrigerated rooms -** The mechanical refrigeration systems for these rooms are controlled with simple time clock defrosts at the freezer coils. It works well but it is not an intelligent system. We recommend utilizing a Smart Defrost system that is designed to defrost the refrigerated room only when they are needed. Typical time clock controlled electric defrost systems have four defrosts per day. Using a Smart Defrost system can reduce the number of defrosts from none to two per day. This system represents an average savings of 75% in energy. In addition to the smart defrost we recommend the use of PSC or ECM motors in all refrigeration room blower coils. These motors last longer and represent a 72% energy consumption reduction, and run quieter than traditional motors.

- **The Exhaust hoods -** Today there are new technologies on the market that allow us to realize savings without restricting the type of hood availability. These systems are called Energy Management Systems or EMS. What EMS controls do is modulate the speed of the exhaust and MAU fan motors with variable frequency drives (VFD's). In simple terms the control system senses heat at the exhaust duct and increase or decreases the amount of exhaust rate based on demand rather than running at 100% capacity 100% of the time. EMS systems have been shown to significantly reduce the energy consumption and electrical demands associated with operating the hood systems. On average this represents a 62% reduction in electrical demand.
  In addition to electrical energy savings there would be an energy savings gained from the reduced heating load at the make up air units. Typically the average fan speed associated airflow of the MAU will drop 30% resulting in a significant amount of air that does not need to be heated. The average pay back for these systems is less than one year and in most cases the cost is immediately reimbursed by the local gas and power utility.

- **Hood Lights -** By replacing the incandescent light bulbs in exhaust hoods significant reductions in energy usage can be realized. Incandescent bulbs transform about 85% of energy they use into heat. The life spans of these lights are approximately 750 to 1000 hours. Consider the constant vibration at the hood and this is reduced even further. The initial cost of a 60 watt incandescent bulb is about 50 cents each and assuming the typical hood has eight lights in it we can calculate that these eight bulbs will cost about $525 dollars per year to operate.

  Compact fluorescent lights CFL's are much more efficient. They convert only about 25% of energy put into them into heat. The lifespan of a CFL is 7,500 to 10,000 hours but the initial cost is about $10 each. This initial high cost is quickly recovered since the cost to operate CFL is about $160 per year. Compact fluorescents should be specified for all new hoods going forward but consider the savings if the change was implemented to include all existing hoods system wide.

- **Low-Flow Pre-Rinse Spray Valves -** A low-flow pre-rinse spray valve is one of the easiest and most cost effective energy saving devices available to the foodservice operator. In addition to minimizing water consumption, water heating energy and sewer charges are also reduced. Replacing a typical spray valve that flows up to three gallons of water per minute with a low-flow unit can yield the same result with less water.

Conclusion

It is our recommendation that the kitchen be renovated to meet current standards for health and safety. The kitchen should be fitted with energy efficient kitchen equipment that will dramatically reduce the cost of operation. Additionally, improving ergonomics will reduce the cost of labor and free time to better deploy labor. Replacement of work counters, sinks, and cooking equipment will improved safety and overall staff moral as well as increase productivity and efficient flow considering the disorganized flow from storage to prep and finally through to cooking. We feel there is enough existing space available in order to reorganize the kitchen portion of this facility.

Lastly, much of this work would be required as part of a renovation due to the many non-code compliant conditions that exist.

Respectfully,

John Sousa

Crabtree McGrath Associates, Inc.

High School – Site Scope Memo

WARNER LARSON
LANDSCAPE ARCHITECTS

11 March 2009

Mr. David Finney
The Design Partnership of Cambridge
Hood Business Park
500 Rutherford Ave.
Charlestown, MA 02129-1647

Re: Lexington School Study
Lexington, MA

Dear Mr. Finney:

Below is a brief memo addressing existing site conditions observed at the Lexington High School site. During the course of the study, we received input from the Committee and a neighborhood group regarding site issues. A conceptual site plan has been prepared indicating a conceptual design approach which attempts to address the issues raised and improve the identity, circulation, aesthetics, scale and character of the Lexington High School grounds.

Site Evaluation

The existing High School is built on a site that leaves little room for expansion. The site is relatively flat and is bounded on all sides by roads, residential properties or playfields. The northerly portion of the site is further limited by the existence of wetlands, in some places as close as 50 feet +/- from the buildings.

The school consists of three separate buildings linked by exterior walkways and a court yard giving a campus like affect. Students are required to go from building to building for class changes, which can be uncomfortable in the harsh N.E. winters. The campus design also creates security issues that must be addressed.

The vehicular circulation consists of one and two way drives leading to large undefined paved parking areas. There seems to be no identifiable main vehicular entrance to the School. Vehicular circulation on the site is confusing due to a lack of definition. Delivery and service is exposed to the southerly parking and dumpsters are disbursed around the campus. There seems to be no main front entrance to the School.

Proposed Conditions

The proposed additions to the building, in additions to satisfying the educational program for the High School, provide unity and definition to the site and improve accessibility between the buildings. With the buildings connected, pedestrian access between buildings will be improved and better security will be provided.

The building addition proposed on the easterly side of the school links two buildings. The one way drive will continue to be used as a student drop off area with some adjustments. Due to floor levels and accessibility issues, the drive will be reconstructed in the same horizontal alignment, but will transition to a slightly higher elevation to facilitate accessibility.

There are wetland issues relating to the proposed construction in this area. Any proposed construction that falls within 100 feet of a wetland will require a Notice of Intent be filed with the Conservation commission. There is also a 25 foot setback from a wetland line which defines a no disturb zone and a 50 foot setback for structures. While these setbacks are compromised in a couple locations as shown on the plan, the construction may be permitted since the existing site improvements have already been developed and the drive will be rebuilt no closer to the wetland. Similarly, The new building will be designed so that it is not any closer to the wetland edge than the existing building.

After a discussion with the Conservation Commission Director, we understand that the Commission may request additional wetland mitigation to satisfy the Conditions of the previous construction.

The southerly parking lot has been redesigned to provide better definition of traffic flow, better delineation of parking spaces and identification of a pedestrian entrance into the main entrance courtyard.

The drive from Waltham Street has been redesigned to provide a controlled intersection at the corner of the school. The flow of traffic will lead cars toward the pedestrian entrance to the main courtyard.

No site design revisions were proposed to the Worthen Road parking area since that area was recently upgraded. Some improvements to the student drop off and bus loading and unloading area were proposed to provide scale, character and interest to the only main entrance that can be seen from a Town road.

Additional planting has been added to provide a better sense of scale, character and definition to the campus.

Respectfully Submitted,

Gary Larson, ASLA, RLA