

CATONSVILLE ELEMENTARY SCHOOL EXISTING CONDITIONS ASSESSMENT REPORT



CATONSVILLE ELEMENTARY SCHOOL EXISTING CONDITIONS ASSESSMENT REPORT

**615 Frederick Road
Catonsville, Maryland 21228**

Prepared For:
Baltimore County
Department of Property Management

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Observation Weather:
Sunny, 80 Degrees

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BACKGROUND & PURPOSE



CATONSVILLE ELEMENTARY SCHOOL EXISTING CONDITIONS ASSESSMENT REPORT

BACKGROUND AND PURPOSE

PURPOSE:

This existing conditions assessment report details key opportunities and faults in regard to the existing building's suitability of an economical renovation. The building was surveyed by architect Manns Woodward Studios and consulting MEP engineer Sidhu Associates.

CONTRIBUTORS:

This feasibility study was initiated in September of 2015 for Baltimore County's Department of Property Management by Manns Woodward Studios. The work was performed under the direction of the Department of Property Management.

BUILDING HISTORY AND SUMMARY:

The building was designed as an elementary school in 1929 and a wing of classrooms was added in 1933. Minor alterations were performed in the 30's and 50's and the gymnasium was added in 1970. Recent alterations include a roof replacement in 1993 and window replacement in 2000. The front facade faces North and fronts Frederick Road. Parking is located in a lot to the East of the school which focuses pedestrian traffic to a side entrance instead of the main front entrance. The playground is directly behind the gymnasium.

METHODOLOGY:

The methods employed for this report included a thorough review of all data and drawings that were available with respect to the existing building and site improvements, and visits to the site to conduct existing condition surveys. No destructive testing methods were utilized.

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EXECUTIVE SUMMARY

SUMMARY

The following study explores the current state of the Catonsville Elementary School's existing conditions in order to give a holistic picture as to what the most cost effective solution is to bring the existing building up to contemporary code and systemic modernization.

Major fabric issues identified are:

- Windows are in poor condition, not thermally broken, and in immediate need of replacement.
Remediation Cost: \$302,400.00
- Non-ADA compliant restrooms.
Remediation Cost: \$502,500.00
- All finishes are in average to poor condition and need to be replaced.
Remediation Cost: \$1,124,756.00
- The mechanical system is out-dated, energy inefficient, and costly to operate and maintain. Given the magnitude of work anticipated to take place, the system should be replaced entirely.
- The electrical system is nearing the end of its life cycle and would be unable to support an updated mechanical system. Given the magnitude of work anticipated to take place, the electrical, security, and telecommunication systems should be replaced entirely.

MEP items in need of immediate replacement:

EQUIPMENT	LIFE EXPECTANCY (YRS)	REMAINING LIFE (YRS)
*Oil Fired Cast Iron Boilers	30	0
*Air Handling Units	20	0
*Plumbing Fixtures	25	0
*Electrical Wiring	30-40	0-15

*Items are part of a system that is completely antiquated and would require replacement of the entire system. See below for total estimate costs for mechanical, electrical, and plumbing systems:

• HVAC:	\$2,662,625.00
• Plumbing & Fire Suppression:	\$658,040.00
• Electrical:	\$2,030,450.00

Total Estimated Construction	\$16,519,013.63
Total Estimated Design	\$1,651,901.36
Total Estimated Furniture	\$1,200,000.00
Total Estimated Bidding Costs & Advertising	\$35,000.00
Total Estimated Capital Cost	\$19,405,915.00

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EXECUTIVE SUMMARY

RENOVATION CHALLENGES:

For a building that is nearly a century old, the original design has served its purpose well. Over the course of its life, the building has withstood many years of use and abuse. However, it is the building's age and size that presents significant and costly challenges in regards to bringing the existing building up to contemporary code standards and systemic modernization.

Additionally, there is concern about the degree of reinforcing that will be required in order to achieve today's performance requirements for seismic, snow, and wind loads. In accordance with the International Existing Building Code, since more than 30% of the building area is anticipated to undergo alterations, a structural analysis will need to be performed in order to demonstrate that the final completed project will comply with current requirements prescribed by IBC. Lateral force stabilization efforts for this project could prove to be costly but are difficult to estimate without having completed further analysis and design.

The thermal performance of the building will be required to be upgraded in accordance with the International Energy Conservation Code (IECC). Currently the building utilizes an unvented composite masonry wall which was a common construction type during the 1920's. This type of construction provides very little thermal performance when compared to today's standards for construction.

According to the IECC, thermal upgrades will be required where areas of work are being performed. The code specifically requires that mass walls, meaning those constructed of masonry, must be continuously insulated and achieve minimal R-Value of 9.5. Continuous insulation can be achieved in a variety of ways but the most effective way is to place the insulation in a vented cavity between the CMU and brick veneer. This wall cavity, complete with an air space, creates a break in the construction that prevents moisture from migrating through the wall. This would not be technically feasible or cost effective given the existing conditions. Therefore, insulation and furring will need to be installed along all perimeter walls on the interior of the building.

Beyond the challenges previously mentioned, there will also be a need for a nearly complete systemic modernization. Provisions for a dedicated sprinkler system and handicap accessibility are all factors that will be required to be updated in concert with any renovation.

FINAL RECOMMENDATION:

Although the price of new construction is slightly higher than the price to renovate, it is recommended that the existing building be demolished and a new building built in its place.

EXISTING CONDITIONS ANALYSIS

SECTION
ARCHITECTURE



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ADA ACCESSIBILITY

SUMMARY:

The following issues were observed at the building that specifically concern handicap accessibility. According to Title III of the law, 20% of the owner's budget must be dedicated to making the building conform with the requirements of ADA. Areas of monetary contribution must be addressed in the following priority:

Accessible Entrances; Accessible Routes to Altered Areas; Accessible Restroom for Each Sex on Each Floor; Accessible Telephones; Accessible Drinking Fountains; Accessible Parking.

ENTRANCE:

According to the ADA, if a renovation encompasses more than 50% of the building area, then all entrances shall be accessible. Currently there are two entrances as defined by the ADA. One is on the East side by the gymnasium and is accessible. However, the main entrance is non-ADA compliant as it can only be accessed via stairs. Any renovation will require a ramp system to bring persons up to finish floor level.

ACCESSIBLE ROUTES:

Portions of the building do not meet accessible route requirements for a variety of reasons. Firstly, as described above, no compliant entry allows access to the First Floor, and consequently, the Second Floor. Secondly, no acceptable vertical circulation is provided that would allow a person to travel from one floor to the next. Thirdly, door leaves to egress stairs are only 30" wide but are required by the IBC to be a minimum of 34". The only ramp in the building is by the gymnasium and appears to meet the required slope of not more than 1" in 12".

The door hardware on most of the doors conform to the ADA required lever type, however, there are a few doors of the "round knob" style which need to be replaced.

SUPPORTING FIGURES:



Main entrance is only accessed via stairs and is therefore, non-ADA compliant.



Ramp meets slope requirements.



Non-Compliant Hardware vs. Required Hardware

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ACCESSIBLE RESTROOMS:

Currently, no toilet rooms in the building meet ADA accessibility requirements. Issues documented include, but are not limited to: inadequate toilet stall clearances, no ADA stall provided, inadequate fixture clearances, noncompliant accessory placement, and unsatisfied turn-radius requirements. A renovation will require at least one accessible toilet fixture for both sexes be provided on each floor for each use area. For example, it would not be acceptable for those who may be in the "Cafeteria" area to traverse into the "Gymnasium" area toilet.

ACCESSIBLE TELEPHONES:

The provisional requirements for telephone usage are easily met throughout the building.

ACCESSIBLE DRINKING FOUNTAINS:

Current drinking fountains do not have the required 27" minimum knee space. New, ADA-compliant units would need to be installed.

ACCESSIBLE PARKING:

The provisional requirements for accessible parking are easily met throughout the site. Although adequate parking spaces may prove to be a challenge to provide depending upon the future use of the building.

SUPPORTING FIGURES:



Inadequate ADA turn radius.



No ADA stall provided.



No knee clearances provided.

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BUILDING FOUNDATION SYSTEMS

FINDINGS:

Based upon existing building drawings, it appears that the foundation system is a slab on grade. Due to the age of the building, any vapor barrier that was originally installed (which is unlikely) would have eroded by this time and the noticeable delamination of VCT may be an indicator of the resultant moisture infiltration.

The drawings indicate a conventionally reinforced concrete spread footing system, presumably proportioned for an allowable soil bearing pressure that we suspect may be in the 2,000 psf range. It's indicated that these footings support load bearing masonry walls. Some stress cracks were observed on the exterior walls indicating uneven settling of the footings which is to be expected with a building of this age with moisture issues.

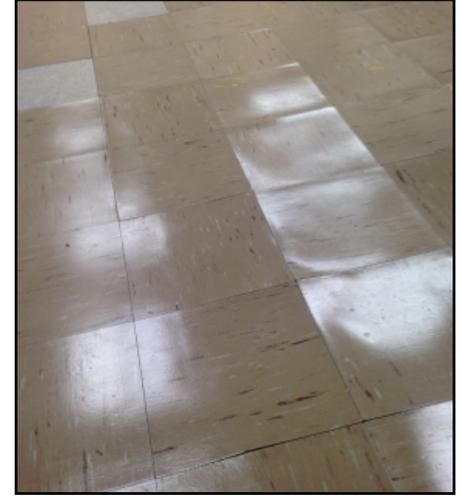
KEY POINTS:

The stress cracks observed on the exterior walls raises some question as to the suitable nature of the soils beneath the foundation and the foundation condition itself. Any possible solution will include excavation of soils in areas showing distress to reveal the nature of the surrounding soil and footing conditions. In addition to subterranean site work, any new work beyond the existing footprint will require a surface storm water management facility to comply with current codes.

SOURCE:

User Testimony
Field Observation
Construction Drawings

SUPPORTING FIGURES:



Delaminating floor finishes may indicate moisture infiltration.



Stress cracks may indicate uneven settling of footings or moisture infiltration.

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BUILDING SUPER STRUCTURE

FINDINGS:

From the existing set of drawings it's assumed that the first and second floors are constructed of concrete slabs supported by a concrete post and beam system. The existing floor is of sound construction with no excessive deflection, cracking, or spalling observed. It may be that over the existing slab, wood floors over furring could have been used and covered over with finishes.

The latest roof replacement was in 1993. A new 4-ply built-up roof was installed over new 1-1/2" foamglas insulation over existing wood plank sheathing and wood rafters. On top of the 1970's gymnasium addition, the same roof system was installed over fiber deck and metal joists.

KEY POINTS:

The super structure seems to be in good condition, however, because the original building's roof is constructed of wood, IBC classifies it as III-B Construction. This means that an automatic sprinkler system is required to be installed throughout or the entire roof framing will need to be replaced with noncombustible materials. It's recommended that the existing roof assembly be removed and replaced with 5-6" of insulation and an EPDM roof to meet current energy code requirements.

SOURCE:

Field Observations
User Testimony
Construction Drawings

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EXTERIOR WALLS

FINDINGS:

Based upon field observation and review of the construction drawings, the entire exterior envelope appears to be 4" brick veneer backed by CMU. There is no air space between the brick and concrete block, rendering it prone to moisture infiltration. Little to no efflorescence was observed while on site which would indicate that the wall is performing surprisingly well for its age. The exterior mortar joints on brick veneer have been excessively weathered and are crumbling in some locations at the original portion of the building. At the gymnasium, joints and brick veneer appear to be in good condition. Certain spots in the building have thru wall cracks at the sills of windows and, while probably not structural in nature, should be repaired to prevent further water infiltration. Spray painted vandalism was observed in several places.

The design team was not able to confirm if perlite/vermiculite was used to insulate within the core of the concrete block, however, it seems probable that it was. Based upon the building's age, the minimal R-value provided by vermiculite would have been considerably degraded due to the insulation settling within the core. Selective demolition should be done to ascertain whether or not vermiculite was used as this could indicate that the bearing walls are not fully reinforced.

KEY POINTS:

The maximum thermal performance of the wall (at 12" CMU) is R-2.8, well below today's code requirement of R-9.5 (with continuous rigid insulation) for mass cavity walls. Since the anticipated work area for this project is greater than 50% of the building's square footage, building code will likely trigger structural and energy efficiency modifications.

It is suggested that the interior face of the walls be furred out and insulated with 2" minimum rigid insulation.

All brick and cast stone joints should be repointed. Testing on existing mortar and brick should be done prior to selecting new mortar type as some types of older bricks can quickly deteriorate when paired with new type-N mortars. Due to the prevalence of graffiti, the whole building should be washed clean and coated with an anti-graffiti coating.

SOURCE:

Field Observations
User Testimony
Construction Drawings

SUPPORTING FIGURES:



Weathered brick joints.



Vandalism.

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EXTERIOR WINDOWS

FINDINGS:

Most of the fenestration is made of hollow metal windows that were replaced in 2000. The units are likely constructed of thermally broken aluminum frames and insulated glazing. Most do not operate properly and require a stick to prop them open. This indicates that the windows were not properly hung and balanced when originally installed. No locking hardware was present on the windows which poses a significant security problem. Sill flashing at windows in the addition portion of the building is in poor condition and requires replacing. There are also AC window units supported by rusted, make-shift supports which do not appear to be in an acceptable condition to leave unattended.

KEY POINTS:

Primarily due to being improperly hung and because of the lack of locks, all window units should be updated. Additionally, due to the historic nature of the building, it is recommended that the replacement windows be of the simulated divided lite type. The AC window units and supports would not be required with an updated MEP system.

SOURCE:

Field Observations
User Testimony
Construction Drawings

SUPPORTING FIGURES:



Typical window condition.



AC window units.

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EXTERIOR DOORS

FINDINGS:

Exterior doors are hollow metal and most have hollow metal frames. Door panels are dented and have started to rust. In general, most frames are salvageable providing they could accommodate the hinging of new door panels. Around the main entry, the door frame is wood and appears to have begun to rot and deteriorate.

Most doors, including egress doors, sit approximately 4"-6" above grade, making the threshold transition non-ADA compliant. Additionally, most doors are fitted with non-compliant ADA hardware.

KEY POINTS:

Any type of renovation will require the owner to contribute 20% of the budget to accessibility upgrades. Anticipate replacing all door panels and fitting them with ADA-compliant latch/lever style hardware. All door frames should be ground and repainted. The main entry assembly should be replaced completely.

SOURCE:

Field Observations
User Testimony
Construction Drawings

SUPPORTING FIGURES:



Condition of hollow metal doors.



Wood frame around entry door has started to rot.



Non-ADA compliant threshold.

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ROOFING

FINDINGS:

Drawings indicate that the roof was re-roofed in 1993 with a 4-ply built-up roof over 1-1/2" of foamglas insulation which has an R-Value of 5.25. Due to lack of roof access, the design team could only observe the courtyard roof but not the gymnasium roof. The ballast covering the modified roofing has begun to wash off from the upper roof and clog the gutters and downspouts. Water retention is an issue in part because of the build up of ballast and because an excessive amount of water is expected to drain into two small internal drains. There are no overflow drains present by these internal drains. Also contributing to the poor drainage condition of the space is that gutters have a lot of rain leaders pouring into them and their discharges have been smashed closed. The tendency for ponding is evident in the rust and condition of the area and has caused the roof sheathing by the drain to soften. Where in acceptable condition, the roof has between 5-10 years of life expectancy left.

Flashing and parapet coping are stainless steel. The flashing appears to be in good condition; however, the sealant at coping joints is failing. The resultant water infiltration has caused the brick veneer to crack to the point where failure is potentially eminent. Some cast stone pieces have also begun to detach from the building in certain areas.

KEY POINTS:

The failing brick veneer should be replaced immediately or risk it falling 40' to the ground below. Loose cast stone pieces should either be properly anchored or replaced with new units. Limited portions of coping should be replaced as required to create permanent seals to stop further water infiltration. If the roof is replaced to accommodate addition insulation then all copings would require replacement. Alternate drainage methods need to be created to direct water away from the overwhelmed internal drains.

SOURCE:

Field Observations
User Testimony
Construction Drawings

SUPPORTING FIGURES:



Gutter clogged with ballast.



Roof drain, no over-flow drain.



Failing brick parapet.

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INTERIOR CONSTRUCTION (DOORS, WALLS, FITTINGS)

FINDINGS:

Block Partitions: Most partitions are plaster finish over CMU block. Partitions appear to be in good structural condition.

Interior Doors: Interior doors are wood veneer set within a wood cased frame and are in good functioning condition. Hollow metal doors are used at egress stairwells. Fire ratings could not be confirmed because some rating tags have been removed or painted over. There are fire doors in each corridor which appear to be functioning, however, they were not tested with the fire alarm. No panic hardware is present in the building and some hardware, such as thumb locks, are strictly prohibited from being used. Any non-ADA compliant hardware should be replaced with the "latch" style lever.

Areas of Concern:

- Lobby: The display case in the lobby is offset from the ground and will require a cane-warning device underneath of it.
- IT Room: The IT room is not secured. If required, the door needs to be repaired so that the gate is no longer needed.
- Mechanical Room: The door to the Mechanical Room is neither wide enough to remove the existing mechanical equipment nor wide enough to install new equipment. Selective demolition of the wall will be required and a double door permanently installed to accommodate large pieces of equipment. Additionally, wall penetrations have voided the fire rating inherent in the wall which is required to surround mechanical areas.

SOURCE:

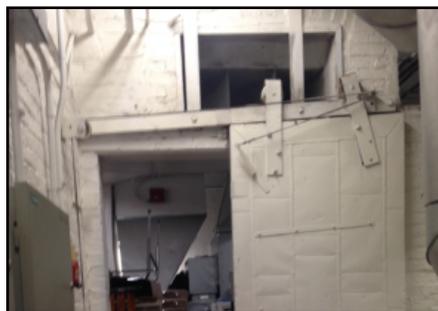
Field Observations
User Testimony
Construction Drawings



Fire rating tag covered over.



Thumb lock prohibited by code.



Inadequate door width at Mechanical Room. Fire rating lost because of wall penetrations.



Cane-warning device required.

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VERTICAL CIRCULATION

FINDINGS:

Interior Staircases: Staircases are steel framed, metal pan stairs filled with concrete, with slip resistant nosing. There appeared to be an adequate amount of exit stairs that meet exit egress width, and tread and riser size requirements. However, there are code violations that include, but are not limited to: guardrail height lower than 42", lack of handrail extensions, and larger than allowable handrail diameters. The super structure of the stair towers themselves will likely not need to be altered to rectify these code violations.

The interior staircase at the main entrance, apart from not being along an ADA-compliant accessible route, has a steeper than allowable rise-over-run ratio. Additionally, because of the width, it would require an intermediate handrail to be installed down the middle.

Exterior Stairs: Stairs leading to the main entrance are in relatively good condition, however, no guardrails are installed.

Other exterior stairs are in average condition. Railings will require the handrail to extend past the top and bottom tread and require picket or rail spacing to be such that nothing 4" in diameter or larger can be passed through them.

In all instances, the non-slip nosing should be replaced and any damaged concrete should be repaired.

Elevators: There is no elevator in this building. A dumbwaiter is present but not code compliant. An elevator and elevator tower will need to be installed.

Ramps: The only ramp in the project is located near the gymnasium and has already been discussed under "ADA ACCESSIBILITY". Additional ramps will need to be constructed throughout the project to accomplish ADA accessibility. Particular areas of concern are both interior and exterior conditions at the main entry and the auditorium which currently has no access to the stage.

SOURCE:

Field Observations
User Testimony
Construction Drawings



Handrail diameter size and extensions not met.



Inadequate handrail extension, spacing between rails, and fall protection.



Non-ADA compliant dumbwaiter.

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FINISHES (WALLS, FLOORS, CEILINGS)

FINDINGS:

The finishes within the building are typical throughout the entire project. In general, finishes consist mostly of plaster over CMU or stud walls, VCT flooring in hallways, classrooms, and the cafeteria, tile in bathrooms and food prep areas, and 2x4 acoustical ceiling tiles. Other materials include concrete and painted brick in mechanical rooms, and rubber flooring in the gymnasium.

The finishes are showing a large degree of use and wear. The plaster was not sanded to a smooth finish which leaves the walls looking rough. VCT tiles are missing, peeling up, and mastic has been left uncovered in areas. This mastic and any other such materials should be tested by a licensed hazardous materials contractor for asbestos. The peeling may be due to moisture infiltration because the moisture barrier has degraded below the slab. Tiles in the bathrooms are dated looking and with the required reconfiguration for ADA compliance, will need to be replaced. Cracking and peeling wall finishes were noted in multiple rooms. Acoustical ceiling tiles are dirty, cracked, and patched in areas.

The auditorium is an area that needs to be addressed. Materials here are very dated and disharmonious. It's recommended that with the required ADA upgrades to take place in the auditorium, this area's finishes also be replaced.

KEY POINTS:

With the poor and inconsistent state of the VCT, all tiles should be removed and replaced. An option may be to install a light weight topping slab to create a level floor system and provide a moisture barrier between the floor finish and slab on grade. Plaster should be removed and GWB over furring studs should be used over all walls. Ceiling tiles in the whole building should be replaced and tiles in the bathrooms should be replaced with vinyl-coated tiles for sanitary and maintenance reasons. Tiles in the bathrooms will need to be removed and replaced after ADA renovations take place. All areas with cracked paint should have the paint scraped off and repainted. Test all paint for hazardous materials before removing.

SOURCE:

Field Observations
User Testimony
Construction Drawings



Missing VCT and exposed mastic.



Patched ceiling tile.



Peeling paint finish.

EXISTING CONDITIONS ANALYSIS

SECTION
Mechanical, Electrical, Plumbing



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EXISTING CONDITIONS ASSESSMENT REPORT

PLUMBING - DOMESTIC WATER SYSTEM

FINDINGS:

Domestic water service is identified as 1-1/4" copper pipe and enters the main building on the West side from Fredrick Road. The service size is adequate for the commercial kitchen and domestic water fixtures (i.e. water fountains, lavatories, water closets, and hand sinks) for the building.

Domestic water piping appears to be mostly copper piping. Sanitary waste piping appears to be cast iron hub and spigot. Domestic hot water is heated by a gas water heater located in the ground floor mechanical room. The domestic hot water pipe is not insulated as is now required by current energy codes.

Water pressure at the fixtures was average to good. Water flowed clear at the fixtures.

PLUMBING - SANITARY SYSTEM

FINDINGS:

The sanitary sewer is located on the south side and the main clean out for the existing building is located in the men's room on the ground floor of the building. The plumbing fixtures all appear to be of a modest grade. The condition of most of the fixtures is average primarily, due to worn finishes. Faucets and trim are a mixture of various brands and types due to repairs made over the years.

PLUMBING - DRAINAGE

FINDINGS:

Roof drainage is by external rainwater conductors drained to splash blocks. The roof drains appear to be clear and evacuate water adequately. There was no observable signs of significant ponding on the flat roof.

The individual floor drains and plumbing fixtures appeared to be mostly clear. Most fixtures drained relatively freely with the faucets running for an extended period. We estimate that the system is operational, but has exceeded its service life.

The visible drain / waste and vent piping were generally in satisfactory condition.

RECOMMENDATIONS:

Install vinyl PVC under sink pipe guards on all exposed lavatory waste piping per plumbing code. None were observed as seen in Photograph #38. A sample is shown to the right.

SOURCE:

Field Observations
User Testimony
Construction Drawings

SUPPORTING FIGURES:

See Appendix B



Sample of Vinyl PVC under sink pipe guards.

CATONSVILLE ELEMENTARY SCHOOL

EXISTING CONDITIONS ASSESSMENT REPORT

PLUMBING - PLUMBING FIXTURES CONDITION

FINDINGS:

- Lavatory Faucets: The faucets were tested using normal operating controls and were generally in satisfactory condition (See Photograph #12).
- Water Closets: The water closets were tested using normal operator controls and were generally in satisfactory condition (See Photograph #37).
- Urinals: The urinals were tested using normal operator controls and were generally in satisfactory condition (See Photograph #6). Some fixtures observed were in need of repair.
- Drinking Fountains: The drinking fountains were tested using normal operator controls and were generally in satisfactory condition (See Photograph #9).

SOURCE:

Field Observations
User Testimony
Construction Drawings

SUPPORTING FIGURES:

See Appendix B

PLUMBING - DOMESTIC HOT WATER HEATER

FINDINGS:

There was one domestic hot water heater located in the ground floor mechanical room with a general description and nameplate data (See Photograph #23). The description is as follows:

- Water heater make: A.O. Smith Heater
- Approximate Size: 75 gallons
- Approximate Capacity: 100,000 Btu.
- Water heater energy source: Natural gas (Age, size & capacity determined by manufacturer's data plate)

PLUMBING - NATURAL GAS PIPING

FINDINGS:

Natural gas and fuel oil piping was generally limited to the main boiler room in the building. There is an underground fuel tank located at the rear of the building that provides No. 2 fuel oil to two steam boilers located in the boiler room. Also located in the boiler room is a fuel oil pumping station for the purpose of supplying fuel to the two heating boilers. All was observed to be generally in satisfactory condition (See Photograph #3).

The gas supply lines and connectors for the water heater were generally in satisfactory condition. The combustion air venting for the water heater was observed to be generally in satisfactory condition. The exhaust gas venting for the water heater was observed to be generally in satisfactory condition.

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PLUMBING - PLUMBING RECOMMENDATIONS

FINDINGS:

The overall plumbing system in the building was observed to be satisfactory. Some of the domestic water piping drains were not observed. It is recommended that drains be rodded out and evaluated by a qualified and state licensed Plumbing Contractor prior to re-occupation.

Existing plumbing fixtures appear to be dated and do not meet the present code requirements for efficiencies for plumbing fixtures. Water closets should be upgraded from 1.6 gpf to 1.28 gpf and lavatory should be equipped with aerators. Any renovation will require new fixtures to be provided.

SOURCE:

Field Observations
User Testimony
Construction Drawings

SUPPORTING FIGURES:

See Appendix B

MECHANICAL - HVAC DESCRIPTION

FINDINGS:

The Heating Ventilation and Air Conditioning (HVAC) systems for the Catonsville Elementary School building was evaluated for their mechanical and plumbing equipment operational condition and life expectancy. The building is heated by two oil burning boilers located on the ground floor of the building (See Photograph #2), and is heated by fin tube baseboard heaters with local wall mounted thermostats providing temperature control. Ventilation and cooling is accomplished by unit ventilators located in the classrooms on the upper floors. There are two air handlers that serve the gymnasium and the dining room on the ground floor and that draw their ventilation air directly from outside air louvers (See Photograph #31). The restrooms and kitchen in the basement are ventilated by drawing air from adjacent spaces; there are existing exhaust fans on the roof that draws exhaust from the bathrooms.

The cooling and heating systems for the building are comprised of various independently running systems. Some of the systems are connected via their heating system that is comprised of two boilers located in the boiler room. The HVAC system throughout the building is comprised of various types of units including: unit ventilators in classrooms, two air handlers with DX cooling and steam coils, exhaust fans on the roof, fin tube baseboards, electric cabinet unit heaters, and window A/C units. These units range in capacity and physical sizes. This report addresses the operational condition of the equipment and not the units' cooling and heating capacity for the space they serve. The evaluation included physical inspection of the units and assessing the operational life.

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MECHANICAL - MECHANICAL EQUIPMENT

FINDINGS:

Boilers

- It was determined that the steam boilers are close to the end of their useful life cycle and overall reliability. Although both boilers are operational, consideration should be taken for replacement of these boilers during any major renovation. As these boilers draw near to the end of their life, expect increased break downs, repair time, and maintenance costs. Additionally, replacement parts for the units will continue to become more scarce and expensive, leaving the units no longer cost effective to operate.

Gas Booster Pumps

- The fuel pumps on site were operating within their expected design parameters (See Photograph #3).

Heating Piping and Pumps

- There was no damage observed on the insulation on the heating water piping connecting the air handler in the boiler room. The supply pumps were in good operational condition (See Photograph #1).

Air Handler

- The air handler located in the ground floor mechanical room is operating within its expected design parameters (See Photograph #4). The observable malfunction was noted. This unit serves the kitchen and cafeteria. It was observed that the cafeteria had additional fans to move air which would suggest that this unit is not providing sufficient air to properly cool the space when occupied.

Indoor Modular Air Handler

- The air handler located in the upper mechanical room is operating within its expected design parameters. This unit serves the gymnasium. Supply grilles are provided on the north side wall.

Fin Tube Baseboard Heaters

- Baseboard fin tube heaters line the perimeter wall in the offices and classrooms throughout the building (See Photograph #11). All the baseboards fin tubes were observed to be in physically good condition. Personnel reported that the baseboard operated adequately during heating season when they are being used.

SOURCE:

Field Observations
User Testimony
Construction Drawings

SUPPORTING FIGURES:

See Appendix B

CATONSVILLE ELEMENTARY SCHOOL

EXISTING CONDITIONS ASSESSMENT REPORT

MECHANICAL - MECHANICAL EQUIPMENT CONT.

FINDINGS:

Window A/C Units

- A number of window A/C units are being used in offices (See Photographs #20 & 34). The areas served by these units were not receiving adequate cooling by the unit ventilators in these spaces. Further investigation is needed to determine the cause of this problem and eliminate the need for the window unit.

Unit Ventilators

- The primary source of cooling throughout the classrooms and offices are unit ventilators (See Photograph #44). These units are located on the perimeter walls under the windows. These units are also the primary source of ventilated air provided to the classrooms. It was noted that these units were not providing adequate cooling on the day observed. Fans were often observed in use, in order to provide additional air flow to the space.

Electrical Cabinet Unit Heaters

- Electrical cabinet unit heaters provide heat to temper the infiltration of air entering the building through main entrances. The unit types varied from recessed in the ceiling of the main entrance to wall mounted types located at exits from the main stairwells. No visible damage was noted to the units.

SOURCE:

Field Observations
User Testimony
Construction Drawings

SUPPORTING FIGURES:

See Appendix B

CATONSVILLE ELEMENTARY SCHOOL EXISTING CONDITIONS ASSESSMENT REPORT

ELECTRICAL - ELECTRICAL SERVICE

FINDINGS:

The Catonsville Elementary School was established in 1949. The school underwent a major renovation in 1970. The school received a new electrical service along with all new distribution equipment, lighting, fire alarm and communications systems. In 2000, another renovation provided the replacement of the existing lighting minus the gymnasium. New distribution equipment was added to provide service for new HVAC and receptacle branch circuits. The fire alarm system was replaced and new IT communications and data network systems were added. Lastly, the gymnasium lighting was replaced.

The existing facility is served from a 480/277VAC three phase, four wire utility service lateral which originates from a power pole located on Frederick Road (See photograph #1) and terminates in an utility CT meter cabinet located in the basement mechanical room (See photographs #2 and 3). The service lateral feeds a double section distribution panel which provides the service disconnecting means. The main circuit breaker of the distribution panel provides the service disconnecting means for the building service. The main circuit breaker is of the molded case, thermal magnetic type, with a current sensor rated for 600A trip and has a symmetrical short circuit rating of 30,000A (See photograph #4). The distribution panel provides 480/277VAC feeder circuits for feeder and branch circuit panelboards and HVAC equipment (See photographs #5 and 6). The distribution panel is manufactured by General Electric, type CCB, and is designed for group-mounted bolted circuit breakers. General Electric no longer manufactures this type of panelboard assembly and an estimate for the age of this panelboard is approximately forty years old.

The electrical service is of the solidly grounded type (See photograph #7).

SOURCE:

Field Observations
User Testimony
Construction Drawings

SUPPORTING FIGURES:

See Appendix A

CATONSVILLE ELEMENTARY SCHOOL

EXISTING CONDITIONS ASSESSMENT REPORT

ELECTRICAL - PANEL & DISTRIBUTION PANELS

FINDINGS:

Through step-down dry-type transformers, 120/208VAC panelboards provide power for lighting, equipment and receptacle branch circuits (See photographs #8 and 9).

The 1970 renovation's electrical distribution system provided 277/480VAC branch circuit panelboards for lighting and HVAC branch circuits and step-down transformer primary feeder circuits. 120/208VAC panelboards, fed from the step-down transformers, provide branch circuits for lighting, equipment, and receptacles. 480/277VAC, type NAB branch circuit panelboards and 120/208VAC, type NLAB branch circuit panelboards are manufactured by General Electric. All panelboards utilize bolted, molded case, thermal/magnetic branch circuit breakers. Again, the manufacturer no longer manufactures these types of branch circuit panelboards and an estimated age of these panelboards is approximately forty years old. It is the assumption that all wiring devices, toggle switches, and receptacles installed during the 1970 renovation are also approximately forty years old.

Branch circuit panelboards are located in the basement mechanical room (See photographs #10-13), gymnasium storage room (See photographs #14-18) and kitchen, the first floor janitor/electric closet (See photographs #19-26) and the second floor janitor/electric closet (See photographs #27-33).

The 2000 renovation added a new distribution panel, step-down transformer, and branch circuit panelboards for the installation of new HVAC equipment, IT equipment, and computer receptacle branch circuits.

The new distribution panel is located in the basement mechanical room along with the 120/208VAC feeder panelboard and the branch circuit panelboard for the basement branch circuits. The new distribution equipment is as manufactured by General Electric. The distribution panel is a Spectra series type and all branch circuit panelboards are AQ series (See Photographs #34-41). The new step-down transformer is K-rated for non-linear loading and is located in a passage area adjacent to the basement mechanical room (See photograph #42).

All electrical distribution equipment installed during the 2000 renovation is in good condition and is approximately fifteen years old. All electrical distribution equipment installed during the 2000 renovation is still in production by the manufacturer. Again, it is the assumption that all wiring devices, toggle switches, and receptacles installed during the 2000 renovation are also approximately fifteen years old.

SOURCE:

Field Observations
User Testimony
Construction Drawings

SUPPORTING FIGURES:

See Appendix A

CATONSVILLE ELEMENTARY SCHOOL

EXISTING CONDITIONS ASSESSMENT REPORT

ELECTRICAL - PANEL & DISTRIBUTION PANELS CONT.

The building wiring method is of the pipe and wire type (See photographs #43 and 44). Where possible, all branch circuit raceways were concealed. Most of the exposed conduit is of the thin-wall construction with set-screw couplings.

All feeder and branch circuit wiring installed under the 1970 renovation is copper with THW insulation (See photograph #45). THW insulation is of the PVC thermoset type suitable for dry/wet, commercial applications at 75 degree C. The metal conduit system was utilized as the equipment ground conductor for the branch circuits installed during the 1970 renovation. Panelboards were not provided with equipment ground bus. When branch circuits with equipment grounding conductors were added, the equipment grounding conductor was attached to the panelboard back box (See photographs #46).

All feeder and branch circuit wiring installed under the 2000 renovation is copper with THHN/THWN insulation (See photograph #47). THHN/THWN insulation is of the thermoplastic type suitable for dry/wet, commercial applications at 75 degree C. Panelboards were provided with equipment ground bus. All feeder and branch circuits include an insulation equipment grounding conductor which terminates to an equipment ground bus (See photograph #48).

ELECTRICAL - FIRE ALARM

FINDINGS:

During or after the 2000 renovation, the building fire alarm system was replaced; however, the building is not fully sprinkled. The building fire alarm control panel is an Edwards EST2 and is supplemented with two notification appliance circuit panels (See photograph #70). The building was provided with new audible and visual indicating devices which are ADA compliant (See photograph #71). Automatic initiating devices were located in the kitchen, storage rooms, and rooms containing fire alarm control equipment (See photographs #72-74). New duct smoke detectors were added to each of the three air handling units (See photograph #75). A control switch was added at the main entrance for fire department use. The control switch provides shut-off for the three building air handling units. Manual pull stations were provided for manual trip of fire alarm systems (See photograph #76). There was no review of the fire alarm wiring. The system and equipment appears to be in working condition. This fire alarm system analysis did not review issues regarding compliance with codes for installation of fire alarm systems.

SOURCE:

Field Observations
User Testimony
Construction Drawings

SUPPORTING FIGURES:

See Appendix A

CATONSVILLE ELEMENTARY SCHOOL EXISTING CONDITIONS ASSESSMENT REPORT

ELECTRICAL - LIGHTING FIXTURES

FINDINGS:

Most of the interior lighting is provided as light fixtures which utilize fluorescent arc-tubes and rapid start solid state ballast. Most fluorescent lamps are tubular type, T-8 with 4100K color temperature. Most interior lighting is surface-mounted. Corridors, stairwells, dining, utility spaces, and toilet rooms utilize surface-mounted lights. (See photographs #50-54). Classrooms utilize pendant-mounted lights (See photograph #49). The auditorium utilizes recessed lights (See photograph #55). The estimated age of the interior lighting is approximately fifteen years old. The gymnasium lighting is provided with pendant-mounted HID high bay light fixtures. There was no as-built documentation for the gymnasium lighting, however, the lighting fixtures appear to be in good shape and, thus, it was concluded that the gymnasium lighting was recently replaced (See photograph #56).

The exterior lighting consists of pole-mounted luminaires for the parking lots and wall-mounted floods to light the driveways and entrances to the site (See photographs #57-59). There are additional lights located at building entrances. It is assumed that the existing exterior lights are of the HID type utilizing either metal halide or high pressure sodium lamps. The fixtures appear to be in good condition. Existing documentation indicated that the pole-mounted luminaires utilize metal halide lamps and were installed in 2011 which make them approximately five years old.

The emergency egress lighting system for the building consists of wall-mounted, self-contained, battery emergency lighting units along with self-contained emergency exit lights (See photographs #60-61). In 2000, the building emergency egress lighting system was redesigned. The new emergency lighting design provided wall-mounted, battery emergency lighting units and self-contained emergency exit lights in the corridors, stairwells, toilet rooms, dining, kitchen, and gymnasium (See photograph #62-69). The new emergency lighting units utilize lead calcium batteries and the exit lights utilize nickel cadmium batteries. The lead calcium battery has a 5 year life and the nickel cadmium battery has a 10 year life. It appears that the batteries for the emergency lighting units and exit signs may have exceeded their life expectancy.

SOURCE:

Field Observations
User Testimony
Construction Drawings

SUPPORTING FIGURES:

See Appendix A

CATONSVILLE ELEMENTARY SCHOOL EXISTING CONDITIONS ASSESSMENT REPORT

MEP EQUIPMENT LIFE EXPECTANCIES

FINDINGS:

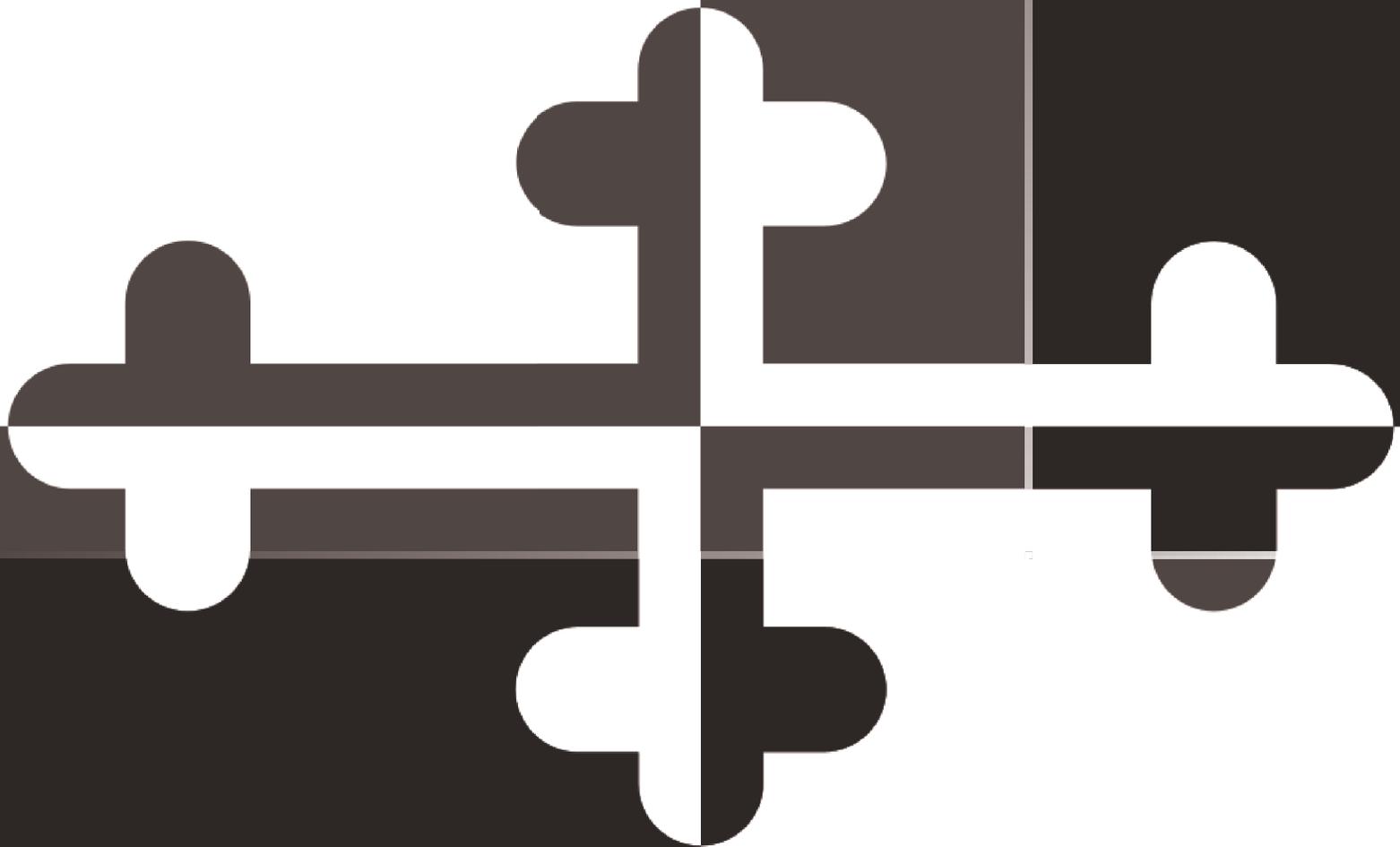
The following estimates are based off of industry standards. The actual life cycles of each may vary based on environment, installation, and maintenance factors.

EQUIPMENT	LIFE EXPECTANCY (YRS)	REMAINING LIFE (YRS)
*Oil Fired Cast Iron Boilers	30	0
*Air Handling Unit (Gymnasium)	15	15
*Air Handling Units (General)	15	0
*Cabinet Unit Ventilators	25	0
*Cabinet Unit Heaters	25	10
*Fin Tube Heaters	25	10
Plumbing Fixtures	15	0
*Electric Water Heaters	10	5
Electrical Wiring	30-40	0-15
Interior Lighting	13	0

*Items are antiquated and would require replacement of entire system. Based off life expectancy, items are in need of immediate replacement. See below for total estimate costs for mechanical, electrical, and plumbing systems:

*HVAC:	<u>\$2,662,625.00</u>
*Plumbing & Fire Supression:	<u>\$658,040.00</u>
*Electrical:	<u>\$2,030,480.00</u>

APPENDIX



CATONSVILLE ELEMENTARY SCHOOL EXISTING CONDITIONS ASSESSMENT REPORT

ELECTRICAL - APPENDIX A



Photograph 1 - Utility power pole located on Frederick Road.



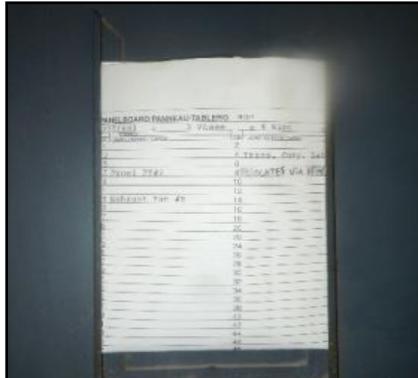
Photograph 2 - Service entrance distribution panelboard.



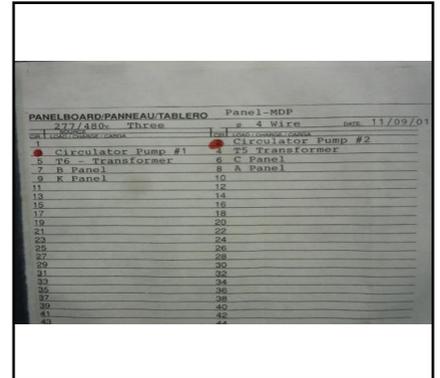
Photograph 3 - 800A, 277/480VAC, 3 phase, 4 wire distribution section.



Photograph 4 - 600A service main circuit breaker.



Photograph 5 - Distribution panel circuit directory (Section 2).



Photograph 6 - Distribution panel circuit directory (Section 1).



Photograph 7 - Grounding electrode conductor connection to domestic water service (Electrode).



Photograph 8 - Dry-type general purpose step-down transformer.



Photograph 9 - Dry-type general purpose step-down transformer.

CATONSVILLE ELEMENTARY SCHOOL EXISTING CONDITIONS ASSESSMENT REPORT

ELECTRICAL - APPENDIX A



Photograph 10 - Branch circuit panel-board located in basement electric room.



Photograph 11 - Branch circuit panel-board N nameplate.



Photograph 12 - Branch circuit panel-board located in basement electric room.



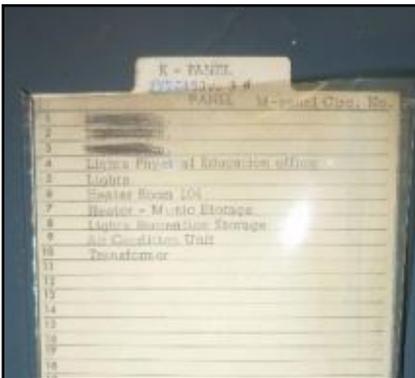
Photograph 13 - Branch circuit panel-board E nameplate.



Photograph 14 - Gymnasium branch circuit panelboards.



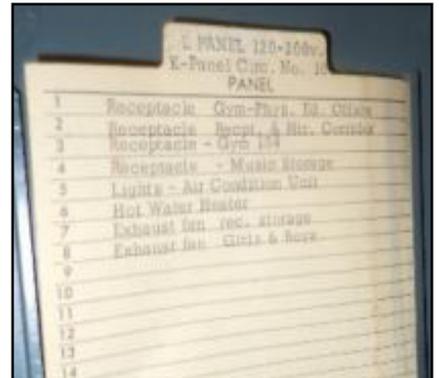
Photograph 15 - Branch circuit panel-board K.



Photograph 16 - Branch circuit panel-board K circuit directory.



Photograph 17 - Gymnasium branch circuit panelboard L.



Photograph 18 - Branch circuit panel-board L circuit directory.

CATONSVILLE ELEMENTARY SCHOOL EXISTING CONDITIONS ASSESSMENT REPORT

ELECTRICAL - APPENDIX A



Photograph 19 - Basement branch circuit panelboards.



Photograph 20 - Branch circuit panel-board A.



Photograph 21 - Branch circuit panel-board A nameplate.



Photograph 22 - Branch circuit panel-board A circuit directory.



Photograph 23 - Branch circuit panel-board D.



Photograph 24 - Branch circuit panel-board D nameplate.



Photograph 25 - Branch circuit panel-board D circuit directory.



Photograph 26 - Dry-type step-down transformer for branch circuit panel-board D.



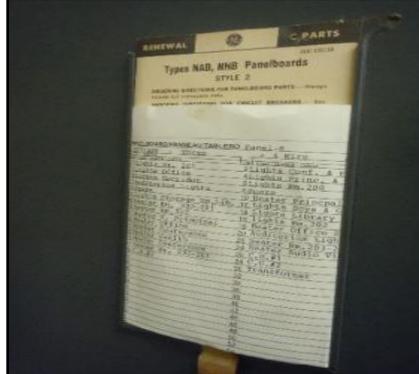
Photograph 27 - Branch circuit panel-board B.

CATONSVILLE ELEMENTARY SCHOOL EXISTING CONDITIONS ASSESSMENT REPORT

ELECTRICAL - APPENDIX A



Photograph 28 - Branch circuit panelboard B nameplate.



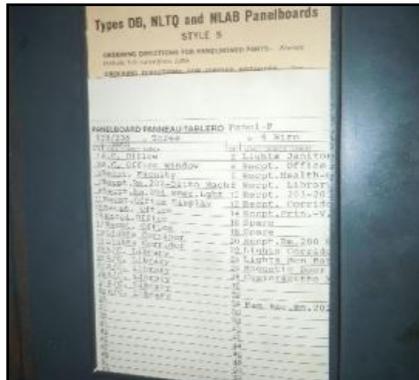
Photograph 29 - Branch circuit panelboard B circuit directory.



Photograph 30 - Branch circuit panelboard F.



Photograph 31 - Branch circuit panelboard F nameplate.



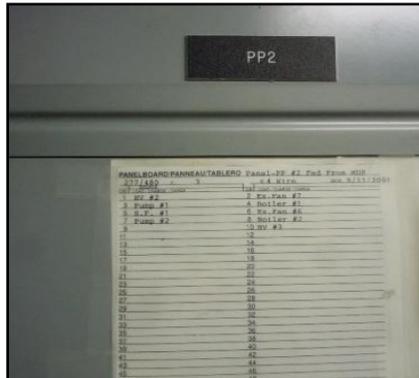
Photograph 32 - Branch circuit panelboard F circuit directory.



Photograph 33 - Dry-type step-down transformer for branch circuit panelboard F.



Photograph 34 - New distribution and branch circuit panelboards.



Photograph 35 - Distribution panelboard PP2.



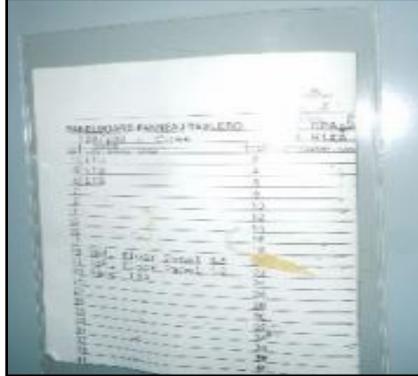
Photograph 36 - Panelboard DPA.

CATONSVILLE ELEMENTARY SCHOOL EXISTING CONDITIONS ASSESSMENT REPORT

ELECTRICAL - APPENDIX A



Photograph 37 - Panelboard DPA nameplate.



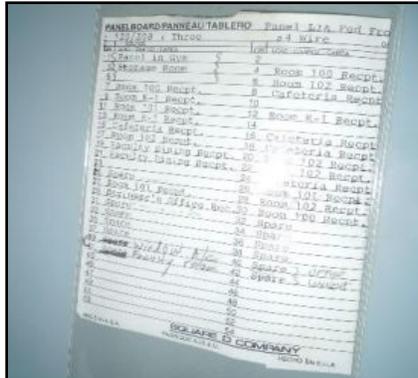
Photograph 38 - Panelboard DPA circuit directory.



Photograph 39 - Branch circuit panelboard L1A.



Photograph 40 - Branch circuit panelboard L1A nameplate.



Photograph 41 - Branch circuit panelboard L1A circuit directory.



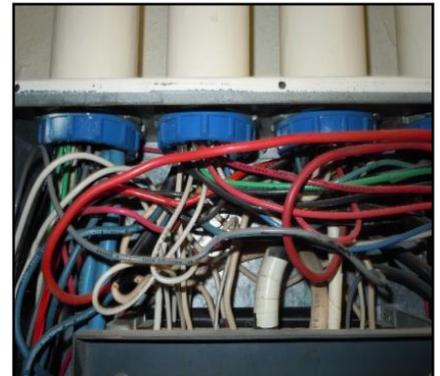
Photograph 42 - K-rated step-down transformer for panelboard DPA.



Photograph 43 - Feeder and branch circuit EMT conduit with set-screw fittings.



Photograph 44 - Feeder and branch circuit conduit with set-screw fittings.



Photograph 45 - TWH insulated copper building wiring.

CATONSVILLE ELEMENTARY SCHOOL EXISTING CONDITIONS ASSESSMENT REPORT

ELECTRICAL - APPENDIX A



Photograph 46 - Equipment grounding conductors bolted to panelboard back box.



Photograph 47 - THHN/THWN insulated copper building wiring.



Photograph 48 - Panelboard equipment ground bus.



Photograph 49 - Pendant-mounted fluorescent light fixtures for classroom illumination.



Photograph 50 - Surface mounted fluorescent light fixtures for corridor illumination.



Photograph 51 - Wall-mounted fluorescent light fixtures for stairwell illumination.



Photograph 52 - Surface mounted fluorescent light fixtures for cafeteria illumination.



Photograph 53 - Pendant-mounted fluorescent light fixtures for utility room illumination.



Photograph 54 - Surface mounted fluorescent light fixtures for toilet room illumination.

CATONSVILLE ELEMENTARY SCHOOL EXISTING CONDITIONS ASSESSMENT REPORT

ELECTRICAL - APPENDIX A



Photograph 55 - Recessed florescent light fixtures for auditorium illumination.



Photograph 56 - HID high bay light fixtures for gymnasium illumination.



Photograph 57 - Building-mounted HID floodlights for exterior site illumination.



Photograph 58 - Building-mounted HID floodlights for exterior site illumination.



Photograph 59 - Pole-mounted HID luminaire for parking lot illumination.



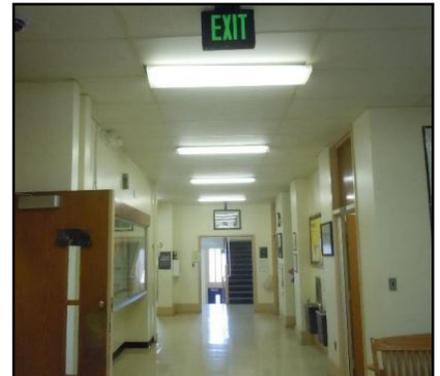
Photograph 60 - Self-contained wall-mounted emergency light fixture.



Photograph 61 - Ceiling-mounted self-contained emergency exit lighting.



Photograph 62 - Ceiling-mounted exit lights and wall-mounted emergency lights for basement corridor egress lighting.



Photograph 63 - Ceiling-mounted exit lights and wall-mounted emergency lights for first floor corridor egress lighting.

CATONSVILLE ELEMENTARY SCHOOL EXISTING CONDITIONS ASSESSMENT REPORT

ELECTRICAL - APPENDIX A



Photograph 64 - Ceiling-mounted exit lights and wall-mounted emergency lights for second floor corridor egress lighting.



Photograph 65 - Wall-mounted emergency lights for stairwell egress lighting.



Photograph 66 - Wall-mounted emergency lights for toilet room egress lighting.



Photograph 67 - Ceiling-mounted exit lights and wall-mounted emergency lights for cafeteria egress lighting.



Photograph 68 - Wall-mounted emergency lights for kitchen egress lighting.



Photograph 69 - Wall-mounted emergency lights for stairwell egress lighting.



Photograph 70 - Fire alarm system control and notification appliance panels.



Photograph 71 - Wall-mounted ADA compliant audible/visual fire alarm indicating device.



Photograph 72 - Ceiling-mounted heat detector located in kitchen.

CATONSVILLE ELEMENTARY SCHOOL EXISTING CONDITIONS ASSESSMENT REPORT

ELECTRICAL - APPENDIX A



Photograph 73 - Ceiling-mounted heat detector located in building storage rooms.



Photograph 74 - Ceiling-mounted smoke detector located in basement mechanical/electrical with fire alarm control panels.



Photograph 75 - Duct-mounted smoke detector for building air handling units.



Photograph 76 - Fire alarm manual pull stations.

CATONSVILLE ELEMENTARY SCHOOL EXISTING CONDITIONS ASSESSMENT REPORT

MECHANICAL & PLUMBING - APPENDIX B



Photograph 1 - Heating water pumps.



Photograph 2 - Smith oil boilers.



Photograph 3 - Gas booster pump in boiler room.



Photograph 4 - Air handling unit located in basement.



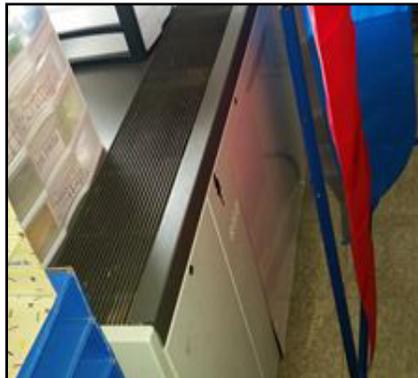
Photograph 5 - In-line fan in boiler room.



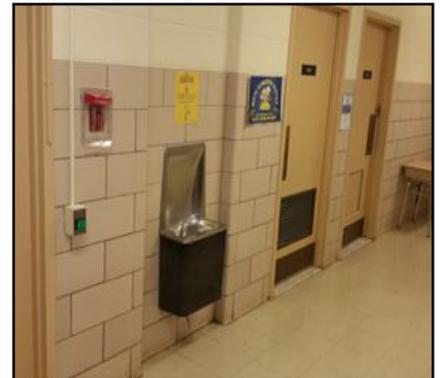
Photograph 6 - Urinal and cabinet fin tube heaters.



Photograph 7 - Return grille.



Photograph 8 - Unit ventilator in classroom.



Photograph 9 - Water fountain in corridor.

CATONSVILLE ELEMENTARY SCHOOL EXISTING CONDITIONS ASSESSMENT REPORT

MECHANICAL & PLUMBING - APPENDIX B



Photograph 10 - Cabinet unit heater in ceiling at entrance.



Photograph 11 - Fin tube heaters in bathroom.



Photograph 12 - Typical bathroom stall and lavatory.



Photograph 13 - Typical bathroom with fin tube radiators and lavatories shown.



Photograph 14



Photograph 15 - Storage closet.



Photograph 16 - Typical bathroom lavatory. Missing pipe guard required by code.



Photograph 17 - Classroom hand sink.



Photograph 18 - Wall-mounted fan.

CATONSVILLE ELEMENTARY SCHOOL EXISTING CONDITIONS ASSESSMENT REPORT

MECHANICAL & PLUMBING - APPENDIX B



Photograph 19 - Perimeter wall louvers.



Photograph 20 - Window AC unit.



Photograph 21 - Main Entrance cabinet unit heater in ceiling.



Photograph 22 - Fire alarm pull station.



Photograph 23 - Domestic water heater.



Photograph 24 - Wall-mounted cabinet pull station.



Photograph 25 - Heater water expansion tank.



Photograph 26 - Return grille.



Photograph 27 - Base board heaters.

CATONSVILLE ELEMENTARY SCHOOL EXISTING CONDITIONS ASSESSMENT REPORT

MECHANICAL & PLUMBING - APPENDIX B



Photograph 28 - Return air grille.



Photograph 29 - Window AC unit serving teachers' lounge.



Photograph 30 - Floor sink serving three-compartment sink.



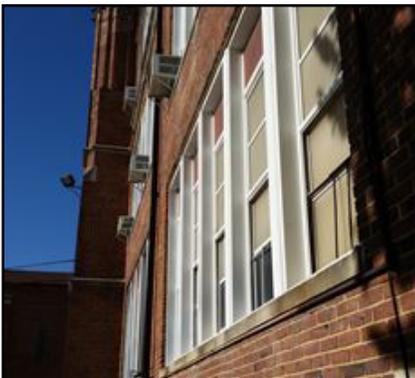
Photograph 31 - Outside air intake grilles.



Photograph 32 - Ceiling of gymnasium. No downward diffusers.



Photograph 33 - Gymnasium return grille.



Photograph 34 - Window AC units.



Photograph 35 - Split system condensers.



Photograph 36 - Fire department siamese connection.

CATONSVILLE ELEMENTARY SCHOOL EXISTING CONDITIONS ASSESSMENT REPORT

MECHANICAL & PLUMBING - APPENDIX B



Photograph 37 - Water closet.



Photograph 38 - Lavatories needing pipe guards.



Photograph 39 - Hose bib needs updating.



Photograph 40 - No air provided in corridors.



Photograph 41 - Supply air grille in gymnasium.



Photograph 42 - Wall-mounted fans in cafeteria.



Photograph 43 - IT closet with no cooling.



Photograph 44 - Ceiling-mounting unit ventilator.

COST ESTIMATE



CATONSVILLE ELEMENTARY SCHOOL EXISTING CONDITIONS ASSESSMENT REPORT

COST ESTIMATE

NO	DESCRIPTION	UNIT	QUANTITY	UNIT COST	AMOUNT	COMMENTS	TRADE SUBTOTAL	SF COST
01.00 GENERAL CONDITIONS & EXISTING CONDITIONS								
	General Conditions	MO	10	\$50,000.00	\$500,000.00			
	Utility Connection Fees	ALLOW	1	\$40,000.00	\$40,000.00			
	Inspection Fees	ALLOW	1	\$90,000.00	\$90,000.00			
	Grading Permit	ALLOW	1	\$0.00	\$0.00			
	Building Permit	ALLOW	1	\$0.00	\$0.00			
	Builders Risk Insurance	ALLOW	1	\$50,000.00	\$50,000.00			
	Other (Permits & Connections)	EA	1	\$75,000.00	\$75,000.00			
	Interior Demolition	SF	60800	\$4.50	\$273,600.00			
	HazMat Abatement	ALLOW	1	\$55,000.00	\$55,000.00			
	Sitework	ALLOW	1	\$670,000.00	\$670,000.00			
	DIVISION SUBTOTAL						\$1,753,600.00	\$26.98
03.00 CONCRETE								
	Wall Footings	CY	100	\$360.00	\$36,000.00			
	Column Footings	CY	100	\$405.00	\$40,500.00			
	4" Slab On Grade	SF	14000	\$8.00	\$112,000.00			
	Misc. Concrete	CY	15	\$360.00	\$5,400.00			
	Concrete Testing	Ea	1	\$9,000.00	\$9,000.00			
	Equipment Pads	SF	150	\$13.00	\$1,950.00			
	DIVISION SUBTOTAL						\$204,850.00	\$3.15
04.00 MASONRY								
	Waterproof Foundation	SF	2500	\$17.00	\$42,500.00			
	Repair Cast Stone	ALLOW	1	\$35,000.00	\$35,000.00			
	Repoint Masonry	SF	30000	\$18.00	\$540,000.00			
	Repair Lintels & Cracks	ALLOW	1	\$335,000.00	\$335,000.00			
	New Walls @ Ramps & Stairs	SF	8000	\$42.00	\$336,000.00			
	DIVISION SUBTOTAL						\$1,288,500.00	\$19.82
05.00 METALS								
	Reframe Stage	SF	3100	\$42.00	\$130,200.00			
	Ramps	ALLOW	3	\$13,000.00	\$39,000.00			
	Stairs	ALLOW	2	\$22,500.00	\$45,000.00			
	Misc Reinforcing & Awnings	TN	30	\$4,500.00	\$135,000.00			
	DIVISION SUBTOTAL						\$349,200.00	\$5.37
06.00 WOODS & PLASTICS								
	Rough Carpentry	HR	115	\$65.00	\$7,475.00			
	Misc. Rough Lumber	ALLOW	1	\$11,000.00	\$11,000.00			
	Lift Rental	MO	10	\$1,000.00	\$10,000.00			
	Install Division 10 Items	HR	55	\$65.00	\$3,575.00			
	Install Doors & Windows	HR	115	\$65.00	\$7,475.00			
	Install Casework & Trim	HR	115	\$65.00	\$7,475.00			
	Lav Tops w/ Integral Sink	LF	20	\$305.00	\$6,100.00			
	Misc. Casework & Trim	ALLOW	1	\$390,000.00	\$390,000.00			
	DIVISION SUBTOTAL						\$443,100.00	\$6.82

CATONSVILLE ELEMENTARY SCHOOL EXISTING CONDITIONS ASSESSMENT REPORT

NO	DESCRIPTION	UNIT	QUANTITY	UNIT COST	AMOUNT	COMMENTS	TRADE SUBTOTAL	SF COST
07.00 THERMAL & MOISTURE PROTECTION								
	Fire Stopping	EA	1	\$9,000.00	\$9,000.00			
	Rigid Insulation	SF	30000	\$7.00	\$210,000.00			
	Roof Repairs and Modifications	ALLOW	1	\$110,000.00	\$110,000.00			
	Roof Specialties	ALLOW	1	\$8,000.00	\$8,000.00			
	Caulking	EA	1	\$40,000.00	\$40,000.00			
	DIVISION SUBTOTAL						\$377,000.00	\$5.80
08.00 OPENINGS								
	Interior Doors and Hardware	EA	135	\$1,000.00	\$135,000.00			
	Exterior Doors and Hardware	EA	13	\$1,000.00	\$13,000.00			
	Window Replacements	SF	4200	\$72.00	\$302,400.00			
	Borrowed Lites	EA	5	\$1,500.00	\$7,500.00			
	Louvers	EA	10	\$2,000.00	\$20,000.00			
	DIVISION SUBTOTAL						\$477,900.00	\$7.35
09.00 FINISHES								
	Light Gauge 3.625" Partitions	LF	4500	\$35.00	\$157,500.00			
	Light Gauge 6.000" Partitions	LF	1500	\$40.00	\$60,000.00			
	Drywall and Furring @ Perimeter	LF	1000	\$28.00	\$28,000.00			
	2x2 Ceiling Tile	SF	56000	\$3.50	\$196,000.00			
	2x2 Ceiling Grid Exposed	SF	2000	\$2.75	\$5,500.00			
	Drywall Ceiling	SF	1600	\$4.00	\$6,400.00			
	Entry Soffit Framing	SF	100	\$45.00	\$4,500.00			
	Ceramic Tile Floor	SF	2400	\$13.00	\$31,200.00			
	Ceramic Tile Base	LF	600	\$13.00	\$7,800.00			
	Ceramic Wall Tile	SF	3500	\$13.00	\$45,500.00			
	Carpet Tiles	SY	2650	\$35.00	\$92,750.00			
	VCT	SF	48000	\$5.00	\$240,000.00			
	Vinyl Base	LF	5000	\$1.75	\$8,750.00			
	Acoustical Ceiling Panels	EA	35	\$2,000.00	\$70,000.00			
	Paint Drywall	SF	60800	\$1.50	\$91,200.00			
	Paint Steel	SF	20000	\$1.00	\$20,000.00			
	Paint / Stain Doors / Frames	EA	148	\$72.00	\$10,656.00			
	Paint Drywall Ceilings	SF	1600	\$2.50	\$4,000.00			
	Misc. Accent Paint	ALLOW	1	\$9,000.00	\$9,000.00			
	Grind, Acid Finish, Seal	SF	9000	\$4.00	\$36,000.00			
	DIVISION SUBTOTAL						\$1,124,756.00	\$17.30
10.00 SPECIALTIES								
	Toilet Partitions	EA	40	\$1,500.00	\$60,000.00			
	Urinal Partition	EA	9	\$555.00	\$4,995.00			
	Room Signage	EA	112	\$50.00	\$5,600.00			
	Lobby & Wayfinding	ALLOW	1	\$17,000.00	\$17,000.00			
	Exterior Building Letters	EA	75	\$150.00	\$11,250.00			
	Marker / Tack Boards	ALLOW	40	\$2,700.00	\$108,000.00			
	TV Mounts	EA	30	\$275.00	\$8,250.00			
	Toilet Room Accessories	RM	8	\$1,500.00	\$12,000.00			
	Fire Extinguisher & Cabinets	EA	18	\$250.00	\$4,500.00			
	Kiln & Lab Equipment	ALLOW	1	\$17,000.00	\$17,000.00			
	Misc. Specialties	ALLOW	1	\$11,000.00	\$11,000.00			
	DIVISION SUBTOTAL						\$259,595.00	\$3.99

CATONSVILLE ELEMENTARY SCHOOL EXISTING CONDITIONS ASSESSMENT REPORT

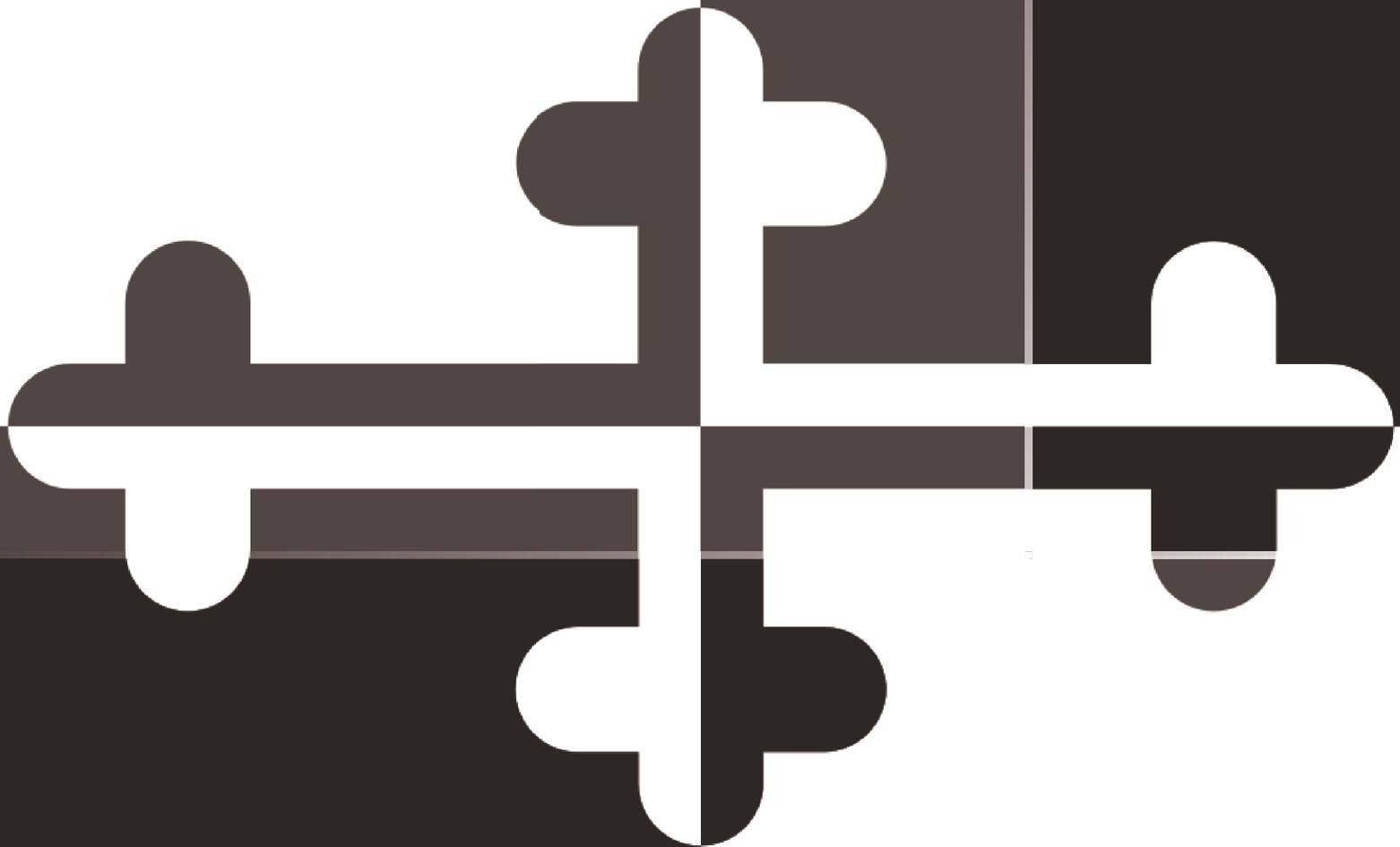
NO	DESCRIPTION	UNIT	QUANTITY	UNIT COST	AMOUNT	COMMENTS	TRADE SUBTOTAL	SF COST
12.00 FURNISHINGS								
	Blinds, Stage, Etc...	ALLOW	1	\$415,000.00	\$415,000.00			
	DIVISION SUBTOTAL						\$415,000.00	\$6.38
14.00 CONVEYING SYSTEM								
	Repair & Upgrade Elevator	ALLOW	1	\$165,000.00	\$165,000.00			
	DIVISION SUBTOTAL						\$165,000.00	\$2.54
21.00 FIRE SUPPRESSION								
21.01	Wet Pipe Sprinkler System	SF	60800	\$2.30	\$139,840.00			
21.02	Entry Valve Assembly	EA	1	\$5,000.00	\$5,000.00			
21.02	Back Flow Preventer	EA	1	\$4,000.00	\$4,000.00			
	DIVISION SUBTOTAL						\$148,840.00	\$2.29
22.00 PLUMBING								
	Demo Cut & Cap	EA	160	\$95.00	\$15,200.00			
	Domestic Water Heater & Pumps	EA	1	\$22,000.00	\$22,000.00			
	Water Closets	EA	40	\$3,000.00	\$120,000.00			
	Urinals	EA	9	\$3,000.00	\$27,000.00			
	Lavs	EA	35	\$3,000.00	\$105,000.00			
	Sinks	EA	32	\$3,000.00	\$96,000.00			
	Roof Drains	EA	5	\$9,000.00	\$45,000.00			
	Drinking Fountains	EA	2	\$4,000.00	\$8,000.00			
	Gas Piping	ALLOW	1	\$45,000.00	\$45,000.00			
	Gas Booster Pump	ALLOW	1	\$11,000.00	\$11,000.00			
	Misc. Plumbing	ALLOW	1	\$9,000.00	\$9,000.00			
	Hose Bibs	EA	4	\$1,500.00	\$6,000.00			
	DIVISION SUBTOTAL						\$509,200.00	\$7.83
23.00 HVAC								
	Mechanical Demo	HR	600	\$105.00	\$63,000.00			
	Tools and Equipment	LS	1	\$3,500.00	\$3,500.00			
	Haulaway	LOADS	3	\$775.00	\$2,325.00			
	Chiller	EA	1	\$415,000.00	\$415,000.00			
	Cooling Tower	EA	1	\$72,000.00	\$72,000.00			
	Water Pumps	EA	2	\$20,000.00	\$40,000.00			
	Heating Pumps	EA	2	\$15,000.00	\$30,000.00			
	Additional AHU	ALLOW	1	\$125,000.00	\$125,000.00			
	Energy Recovery	EA	1	\$72,000.00	\$72,000.00			
	Hydronic Piping	SF	60800	\$9.00	\$547,200.00			
	Unit Ventilators	EA	30	\$7,000.00	\$210,000.00			
	Exhaust	EA	10	\$3,500.00	\$35,000.00			
	Terminal Units	LS	1	\$11,000.00	\$11,000.00			
	Ductwork and Diffusers	SF	60,800	\$9.00	\$547,200.00			
	Insulation	SF	60,800	\$3.00	\$182,400.00			
	Controls	EA	1	\$225,000.00	\$225,000.00			
	Test and Balance	EA	1	\$60,000.00	\$60,000.00			
	Commission	ALLOW	1	\$22,000.00	\$22,000.00			
	DIVISION SUBTOTAL						\$2,662,625.00	\$40.96

CATONSVILLE ELEMENTARY SCHOOL EXISTING CONDITIONS ASSESSMENT REPORT

NO	DESCRIPTION	UNIT	QUANTITY	UNIT COST	AMOUNT	COMMENTS	TRADE SUBTOTAL	SF COST
26.00 ELECTRIC								
	Demo / Make Safe	EA	200	\$95.00	\$19,000.00			
	Transofmer Pad & Duct Bank	EA	1	\$45,000.00	\$45,000.00			
	Telecom Ductbank	EA	1	\$35,000.00	\$35,000.00			
	2000A Switchboard	EA	1	\$150,000.00	\$150,000.00			
	Emergency Generator	EA	1	\$225,000.00	\$225,000.00			
	Branch Circuit Panels and Feeders	SF	60,800	\$4.50	\$273,600.00			
	HVAC Connections	SF	60,800	\$3.50	\$212,800.00			
	Lighting	SF	60,800	\$4.50	\$273,600.00			
	Branch Devices	SF	60,800	\$2.25	\$136,800.00			
	Branch Circuit Conduit and Wiring	SF	60,800	\$3.00	\$182,400.00			
	Basic Materials	SF	60,800	\$6.75	\$410,400.00			
	PA System	SF	60800	\$1.10	\$66,880.00			
	DIVISION SUBTOTAL						\$2,030,480.00	\$31.24
27.00 COMMUNICATIONS								
27.01	Voice / Data / Telephone	SF	60,800	\$4.50	\$273,600.00			
	DIVISION SUBTOTAL						\$273,600.00	\$4.21
28.00 ELECTRONIC SAFETY & SECURITY								
28.01	Fire Alarm System	ALLOW	1	\$140,000.00	\$140,000.00			
	Video Monitoring	ALLOW	1	\$50,000.00	\$45,000.00			
28.02	Access Control System	ALLOW	1	\$40,000.00	\$40,000.00			
	DIVISION SUBTOTAL						\$225,000.00	\$3.46
31.00 EARTHWORK								
	SEE DIVISION 1							
	DIVISION SUBTOTAL						\$0.00	\$0.00
32.00 SITE IMPROVEMENTS								
	SEE DIVISION 1							
	DIVISION SUBTOTAL						\$0.00	\$0.00
33.00 UTILITIES								
	Utiilities	ALLOW	1	\$165,000.00	\$165,000.00			
	DIVISION SUBTOTAL						\$165,000.00	\$2.54
	Total Divisions						\$12,873,246.00	
	Contingency			10.00% Div			\$1,287,324.60	
	Overhead & Profit			10.00% Div + Contingency			\$1,416,057.06	
	Insurance			1.00% Div + Contingency + O&P			\$155,766.28	
	Payment and Performance Bond			5.00% Div + Contingency + O&P + In			\$786,619.70	
	TOTAL ESTIMATED CONSTRUCTION						\$16,519,013.63	\$254.14
	TOTAL ESTIMATED DESIGN COSTS			10.00%			\$1,651,901.36	
	TOTAL ESTIMATED FURNITURE						\$1,200,000.00	
	ESTIMATED BIDDING COSTS & ADVERTISING						\$35,000.00	
	TOTAL ESTIMATED CAPITAL COSTS						\$19,405,915.00	\$298.55

Note: Cost estimate does not take into account inflation or escalation.

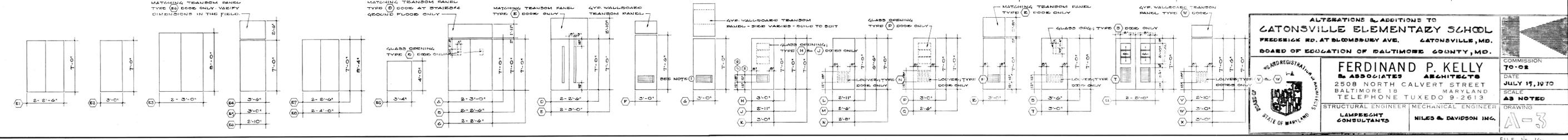
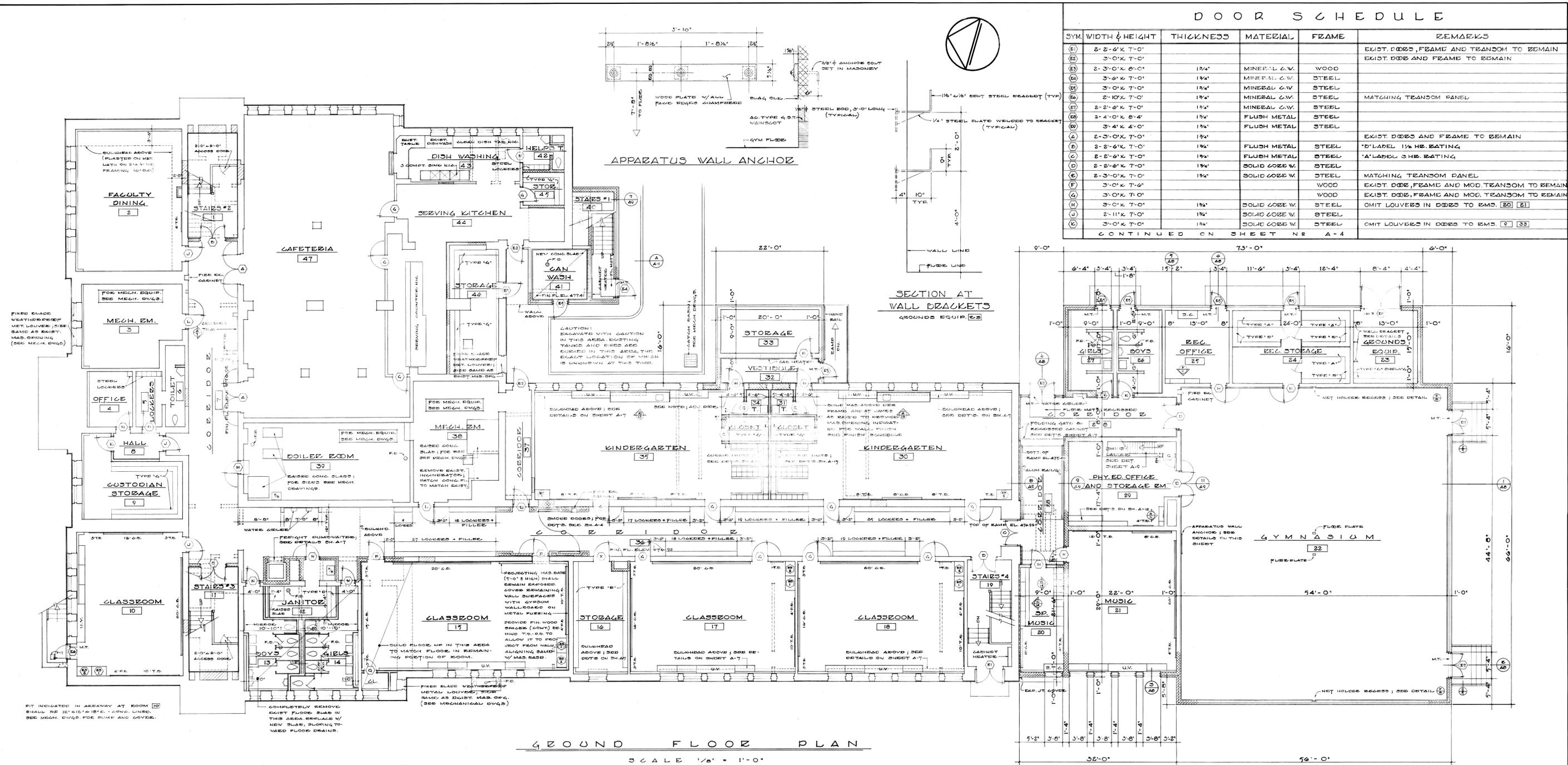
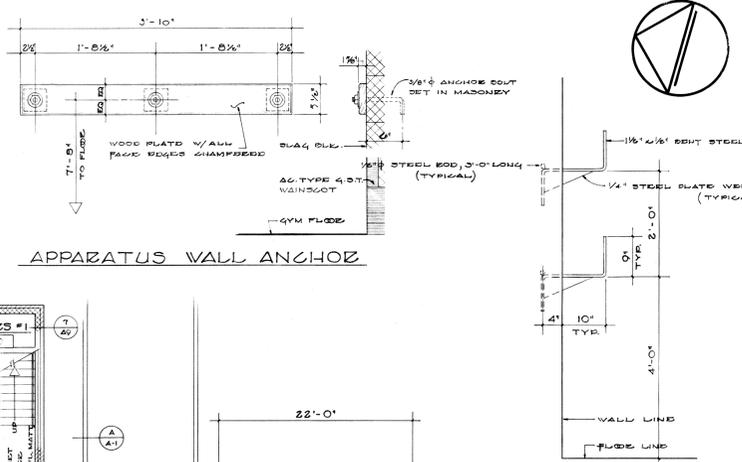
EXISTING DRAWINGS



DOOR SCHEDULE

SYM.	WIDTH & HEIGHT	THICKNESS	MATERIAL	FRAME	REMARKS
(E)	2'-2'-0" X 7'-0"				EXIST. DOOR, FRAME AND TRANSOM TO REMAIN
(F)	3'-0" X 7'-0"				EXIST. DOOR AND FRAME TO REMAIN
(G)	2'-3'-0" X 8'-0"	1 3/4"	MINERAL C.W.	WOOD	
(H)	3'-0" X 7'-0"	1 3/4"	MINERAL C.W.	STEEL	
(I)	3'-0" X 7'-0"	1 3/4"	MINERAL C.W.	STEEL	
(J)	2'-10" X 7'-0"	1 3/4"	MINERAL C.W.	STEEL	MATCHING TRANSOM PANEL
(K)	2'-2'-0" X 7'-0"	1 3/4"	MINERAL C.W.	STEEL	
(L)	2'-4'-0" X 8'-4"	1 3/4"	FLUSH METAL	STEEL	
(M)	3'-4" X 4'-0"	1 3/4"	FLUSH METAL	STEEL	
(N)	2'-3'-0" X 7'-0"	1 3/4"	FLUSH METAL	STEEL	EXIST. DOORS AND FRAME TO REMAIN
(O)	2'-2'-0" X 7'-0"	1 3/4"	FLUSH METAL	STEEL	'B' LABEL 1 1/2" HE. EATING
(P)	2'-2'-0" X 7'-0"	1 3/4"	FLUSH METAL	STEEL	'A' LABEL 3/8" HE. EATING
(Q)	2'-2'-0" X 7'-0"	1 3/4"	SOLID CORE W.	STEEL	
(R)	2'-3'-0" X 7'-0"	1 3/4"	SOLID CORE W.	STEEL	MATCHING TRANSOM PANEL
(S)	3'-0" X 7'-0"	1 3/4"	WOOD	WOOD	EXIST. DOOR, FRAME AND MOD. TRANSOM TO REMAIN
(T)	3'-0" X 7'-0"	1 3/4"	WOOD	WOOD	EXIST. DOOR, FRAME AND MOD. TRANSOM TO REMAIN
(U)	2'-11" X 7'-0"	1 3/4"	SOLID CORE W.	STEEL	OMIT LOUVER IN DOOR TO RMS. [20] [21]
(V)	2'-11" X 7'-0"	1 3/4"	SOLID CORE W.	STEEL	OMIT LOUVER IN DOOR TO RMS. [20] [21]
(W)	3'-0" X 7'-0"	1 3/4"	SOLID CORE W.	STEEL	OMIT LOUVER IN DOOR TO RMS. [20] [21]

CONTINUED ON SHEET NO. A-4



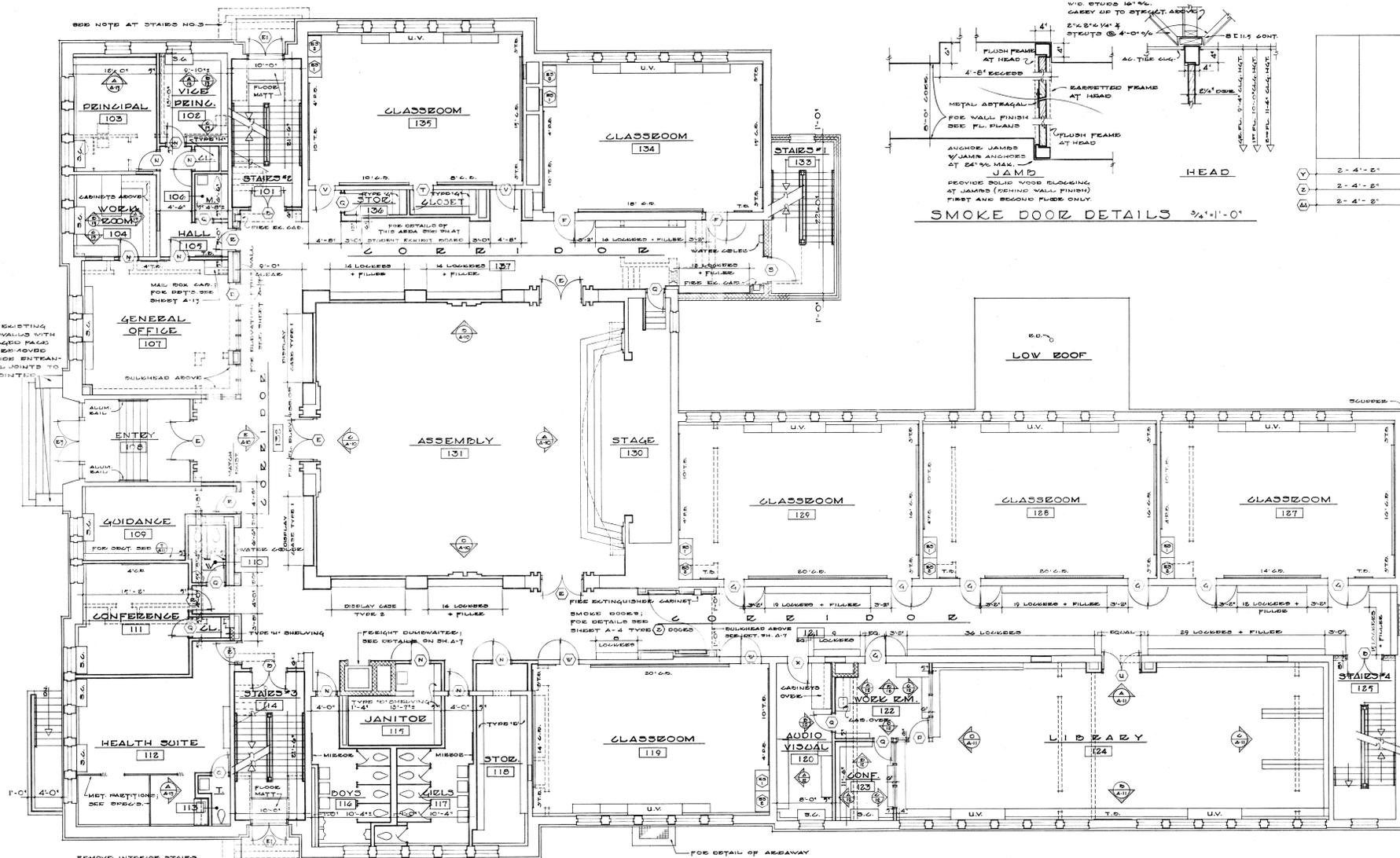
ALTERATIONS & ADDITIONS TO
CATONSVILLE ELEMENTARY SCHOOL
 FREDERICK RD. AT BLOOMSBURY AVE. CATONSVILLE, MD.
 BOARD OF EDUCATION OF BALTIMORE COUNTY, MD.

REGISTERED ARCHITECT
FERDINAND P. KELLY
 2508 NORTH CALVERT STREET
 BALTIMORE 18, MARYLAND
 TELEPHONE TUXEDO 9-2613

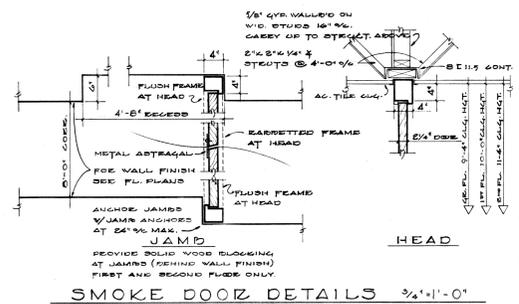
REGISTERED MECHANICAL ENGINEER
LAMBERT CONSULTANTS
 NILES & DAVIDSON, INC.

COMMISSION 70-02
 DATE JULY 17, 1970
 SCALE AS NOTED
 DRAWING A-3

FILE No. 16



FIRST FLOOR PLAN
SCALE 1/8" = 1'-0"

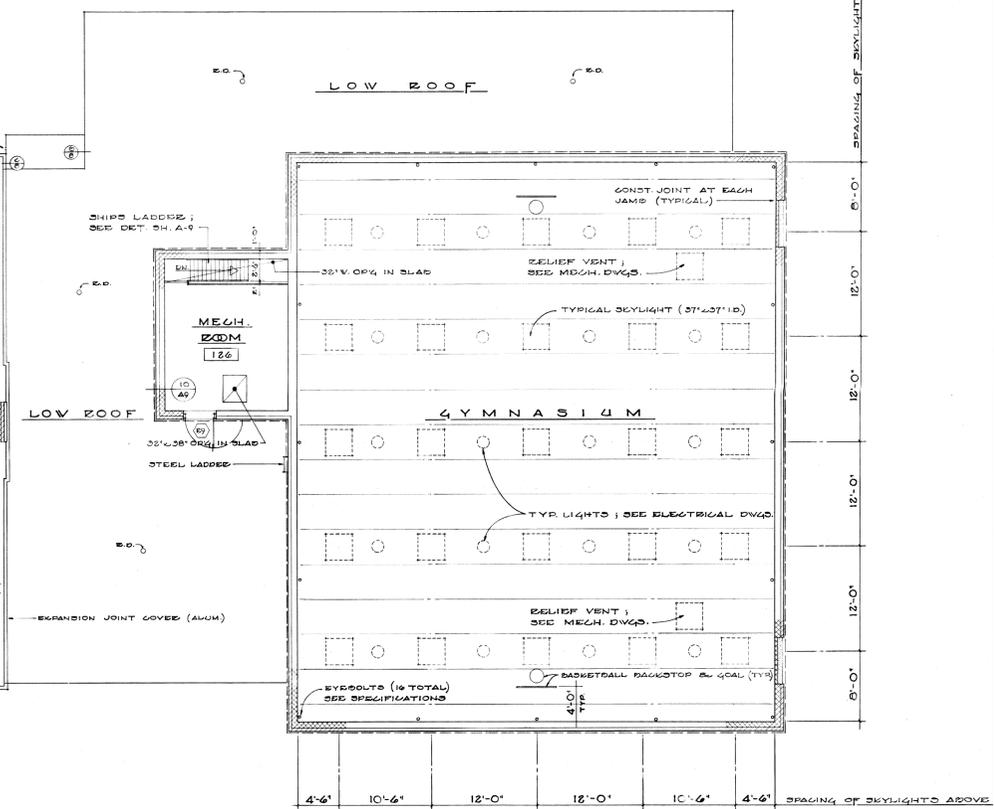


SMOKE DOOR DETAILS 3/4" x 1'-0"

DOOR SCHEDULE
CONTINUED

SYM	WIDTH & HEIGHT	THICKNESS	MATERIAL	FRAME	REMARKS
(L)	2'-11" x 7'-0"	1 3/4"	FLUSH METAL	STEEL	1" LABEL 1 1/2" H.E. BATING
(M)	2'-8" x 6'-6"	1 3/4"	FLUSH METAL	STEEL	1" LABEL 1 1/2" H.E. BATING
(N)	2'-8" x 7'-0"	1 3/4"	SOLID CORE W.	STEEL	OMIT LOUVERS IN DOORS TO RMS 118 212
(O)	3'-0" x 7'-0"	1 3/4"	SOLID CORE W.	STEEL	
(P)	2'-6" x 7'-0"	1 3/4"	SOLID CORE W.	STEEL	
(Q)	3'-0" x 7'-0"	1 3/4"	SOLID CORE W.	STEEL	MATCHING TRANSOM PANEL
(R)	3'-6" x 7'-0"	1 3/4"	FLUSH METAL	STEEL	1" LABEL 1 1/2" H.E. BATING
(S)	3'-0" x 7'-0"	1 3/4"	SOLID CORE W.	WOOD	
(T)	2'-2" x 7'-0"	1 3/4"	SOLID CORE W.	STEEL	
(U)	2'-10" x 7'-0"	1 3/4"	SOLID CORE W.	WOOD	
(V)	3'-0" x 7'-6"	1 3/4"	SOLID CORE W.	WOOD	OMIT LOUVER IN DOOR TO RM. 204
(W)	3'-0" x 7'-0"	1 3/4"	SOLID CORE W.	WOOD	UNDEADEN DOOR ONE (1) INCH
(X)	2'-4" x 7'-0"	1 3/4"	SOLID CORE W.	STEEL	
(Y)	2'-4" x 7'-0"	1 3/4"	SOLID CORE W.	STEEL	
(Z)	2'-4" x 9'-8"	2 1/4"	SOLID CORE W.	STEEL	
(AA)	2'-4" x 11'-0"	2 1/4"	SOLID CORE W.	STEEL	

NOTES:
 1. BOTH (P) AND (Q) TYPE DOORS ARE EXISTING. DETAIL CONFIGURATIONS FOR THESE DOORS ARE NOT SHOWN, ONLY OVERALL DIMENSIONS.
 2. INSTALL FLUSH METAL LOUVER IN BOTTOM PANEL OF EACH DOOR.
 3. MODIFY WOOD FRAME OF (T) TYPE DOOR, ELIMINATING TRANSOM ABOVE. WOOD TRIM AND CASING SHALL BE MODIFIED TO MATCH ADJACENT OPENINGS. PATCH AND MATCH ALL ADJACENT FINISHES AS REQUIRED TO PRODUCE A FIRST CLASS JOB.
 4. ALL (S) AND (U) TYPE DOORS AS WELL AS ALL DOORS IN ROOMS OR SPACES NUMBERED 102, 103, 104, 105, 106, 107, 108, 109, 110, 111, 112, 113, 114, 115, 116, 117, 118, 119, 120, 121, 122, 123, 124, 125, 126, 127, 128, 129, 130, 131, 132, 133, 134, 135 SHALL HAVE FACE VENEERS OF PREMIUM GRADE CLEAR BLENDED WHITE OAK. ALL OTHER NEW WOOD DOORS TO HAVE FACE VENEERS OF PAINT GRADE PINE OR MAPLE.



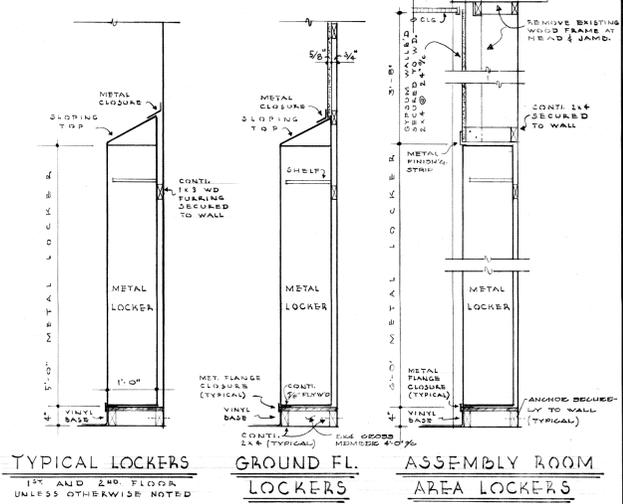
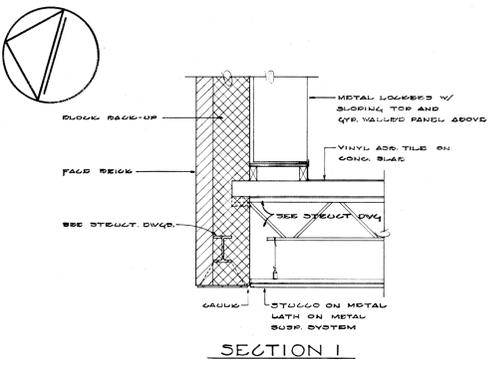
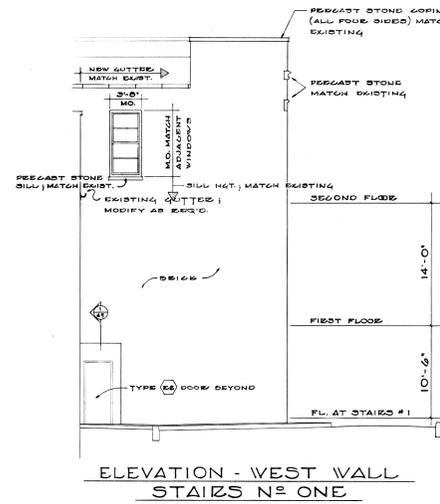
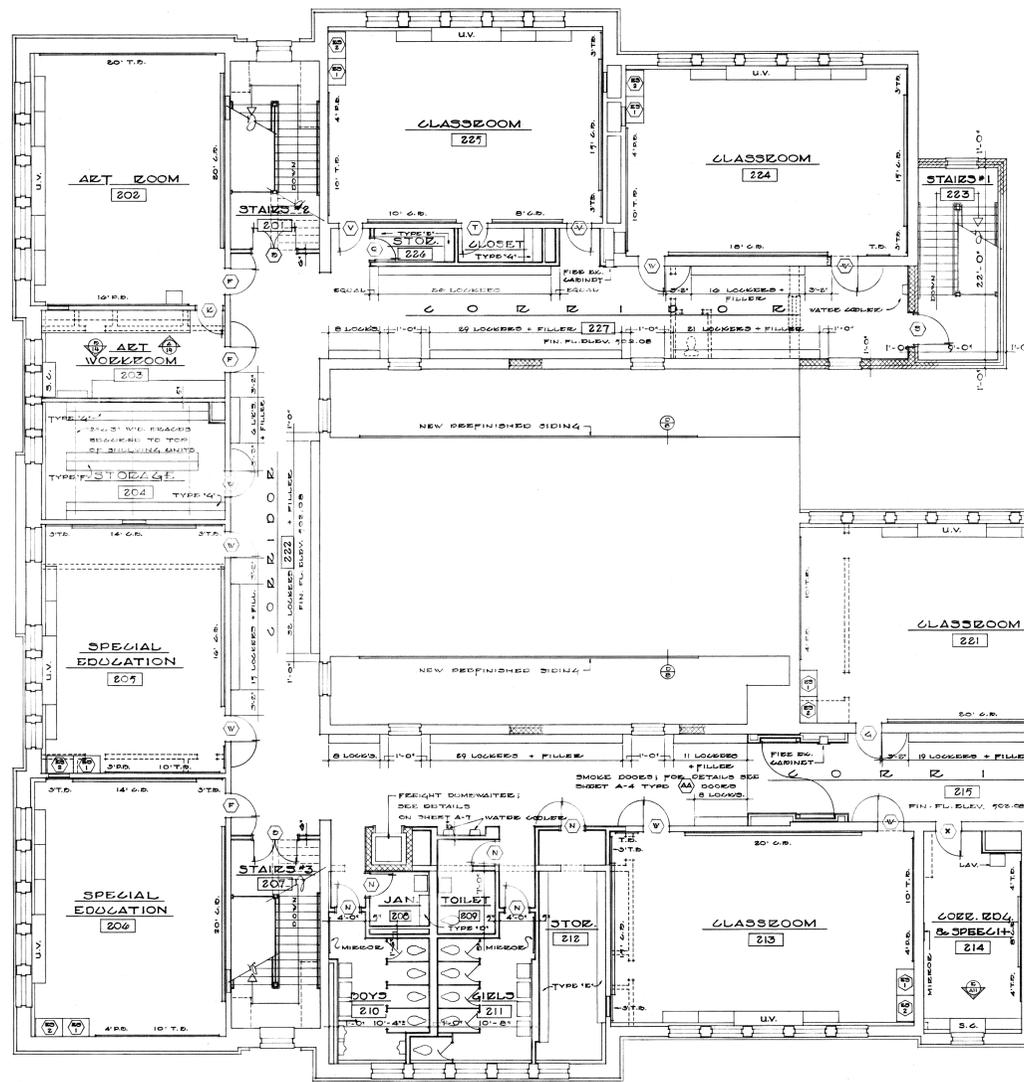
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 FREDERICK RD. AT BLOOMSBURY AVE. CATONSVILLE, MD.
 BOARD OF EDUCATION OF BALTIMORE COUNTY, MD.

FERDINAND P. KELLY
 ASSOCIATES ARCHITECTS
 2508 NORTH CALVERT STREET
 BALTIMORE 18 MARYLAND
 TELEPHONE TUXEDO 9-2613

LAMBERT ENGINEERS
 CONSULTANTS
 NILES & DAVIDSON INC.

COMMISSION
 70-08
 DATE
 JULY 17, 1970
 SCALE
 AS NOTED
 DRAWING
 A-4

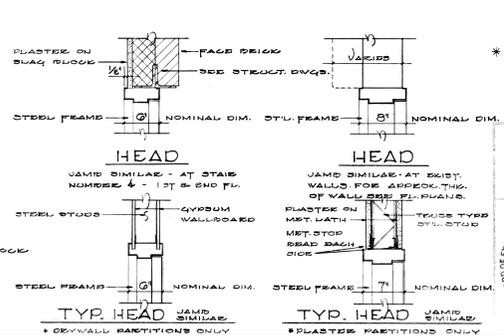
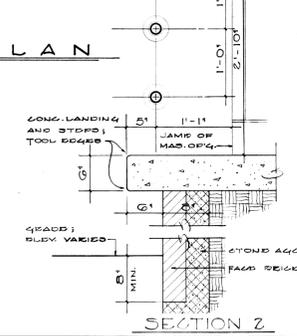
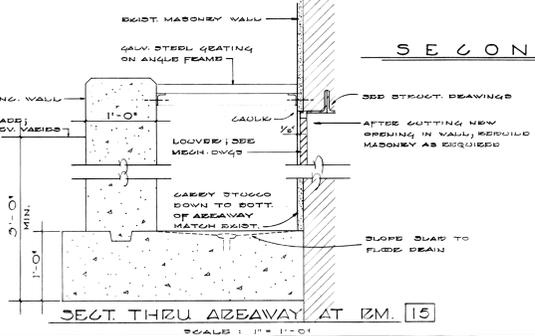
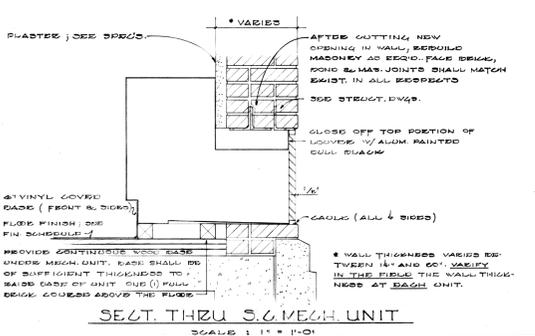
FILE No. 16



ELEVATION - WEST WALL STAIRS NO ONE
 TYPICAL LOCKERS 1ST AND 2ND FLOOR UNLESS OTHERWISE NOTED
 GROUND FL. LOCKERS
 ASSEMBLY ROOM AREA LOCKERS
 SCALE: 3/4" = 1'-0"

SECOND FLOOR PLAN

SCALE 1/8" = 1'-0"



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 FREDERICK ED. AT BLOOMSBURY AVE. CATONVILLE, MD.
 BOARD OF EDUCATION OF BALTIMORE COUNTY, MD.

FERDINAND P. KELLY
 ASSOCIATES ARCHITECTS
 2808 NORTH CALVERT STREET
 BALTIMORE 18 HIGHLAND HILLS
 TELEPHONE TUXE03 9-3819

DATE: JULY 15, 1970
 SCALE: AS NOTED
 DRAWING: A-5

LAMPECHT CONSULTANTS
 HILES & DAVIDSON INC.