



## APPENDIX- MEPFP ASSESSMENT DEFINITIONS

Outlined below is a list of definitions for assessment categories identified in the Mechanical, Electrical, Plumbing and Fire Protection Assessment and how the recommendations are prioritized by Fitzemeyer & Tocci Associates, Inc.

Priority      Condition

1.              Code Compliance

The deficiency or condition represents a potential hazard to life or safety requiring immediate correction to bring into compliance with current codes and regulations. Examples include exposed wiring, missing alarm devices, missing safety devices or interlocks, water cross connections, and similar conditions that pose a potential hazard. This category typically does not include recent policy mandated changes or code compliance conditions related to construction materials or design standards that were compliant with codes and regulations at the time the building was constructed but have since been superseded or revised.

2.              Functionality

The equipment or system is essential to the proper functioning of the building but is aged or in a state of disrepair to an extent that it does not function as designed or is inoperable. Also includes conditions if neglected in the short term will lead to damage to other building elements (such as leaks, condensation, mold, freezing, etc.). May also include design deficiencies that prevent the optimal performance or capacity of equipment or systems.

3.              Integrity and Capacity

The equipment or system is essential to the proper functioning of the building but is aged or in a state of deferred maintenance such that failure is likely to occur within one or two years without frequent unscheduled maintenance, emergency calls, and repetitive repairs. The equipment may have degraded to a point such that its design capacity has been reduced. Examples include heat exchangers, burners, generators, etc. This category also includes equipment or systems that are at their limiting capacity and further short-term adaptation of the facility cannot be accommodated without an upgrade.

4.              Policy Mandated Retrofit

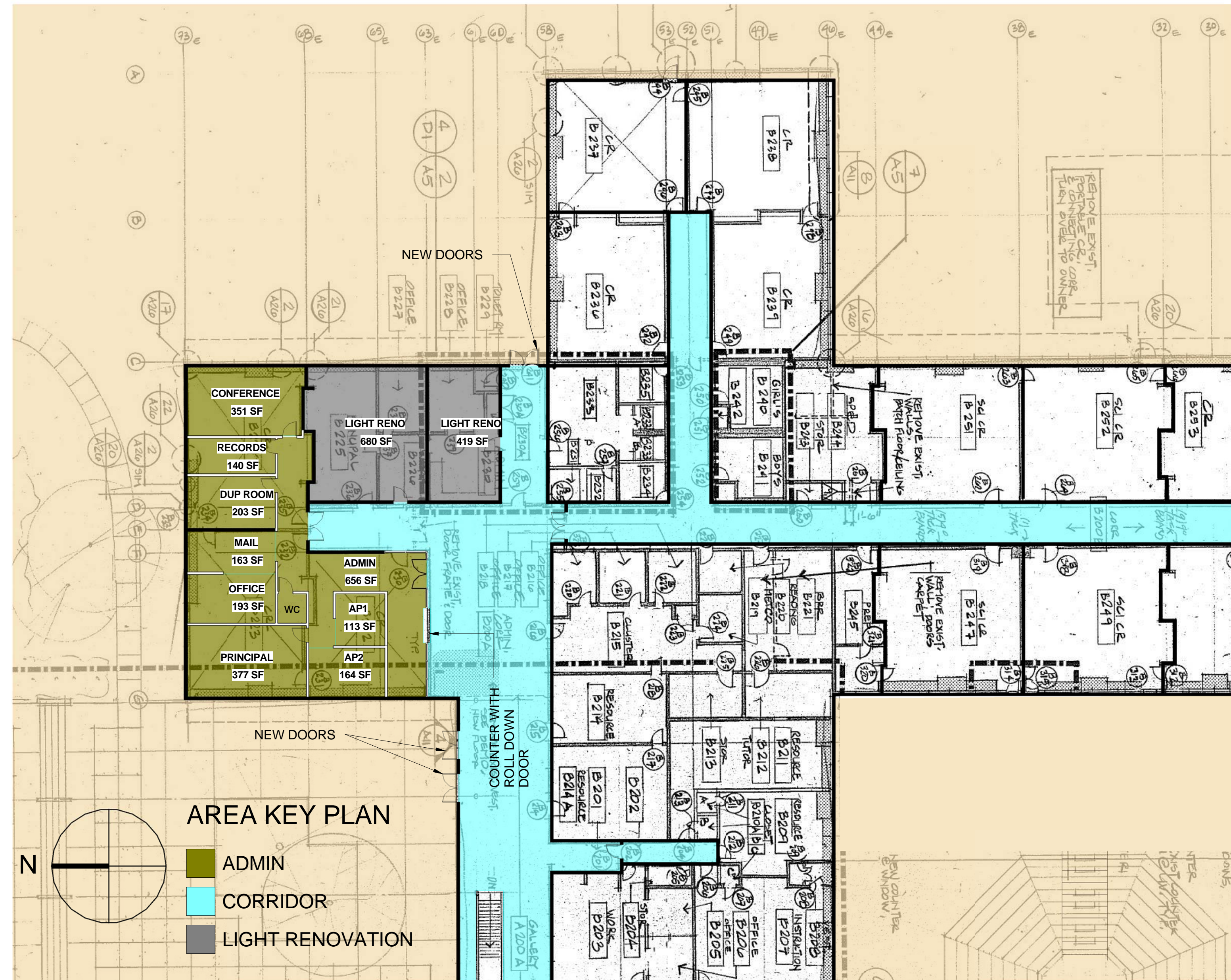
The equipment or system was designed and constructed to standards that have been superseded by current codes, regulations and policies. Examples include seismic restraints, ADA accessibility, asbestos abatement, mandated energy efficiency, refrigerant replacement, egress requirements, sprinkler systems, and water use reduction. Also includes replacement of materials of construction that are currently not allowed by current codes or regulations.

5. Lifecycle Renewal

The equipment or system is approaching or has exceeded its intended service life. The equipment is nominally operational and may have the perceived benefit further useful life, but future necessary repairs, preventative maintenance, unscheduled service and emergency calls may present increased operational costs that are avoidable by replacement with new equipment or materials.

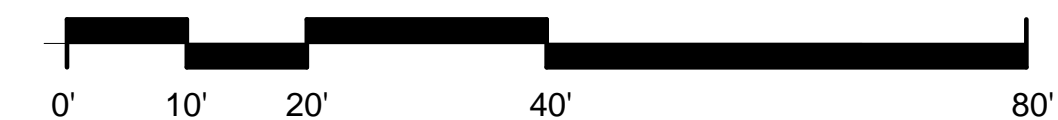
6. Lifecycle Efficiency

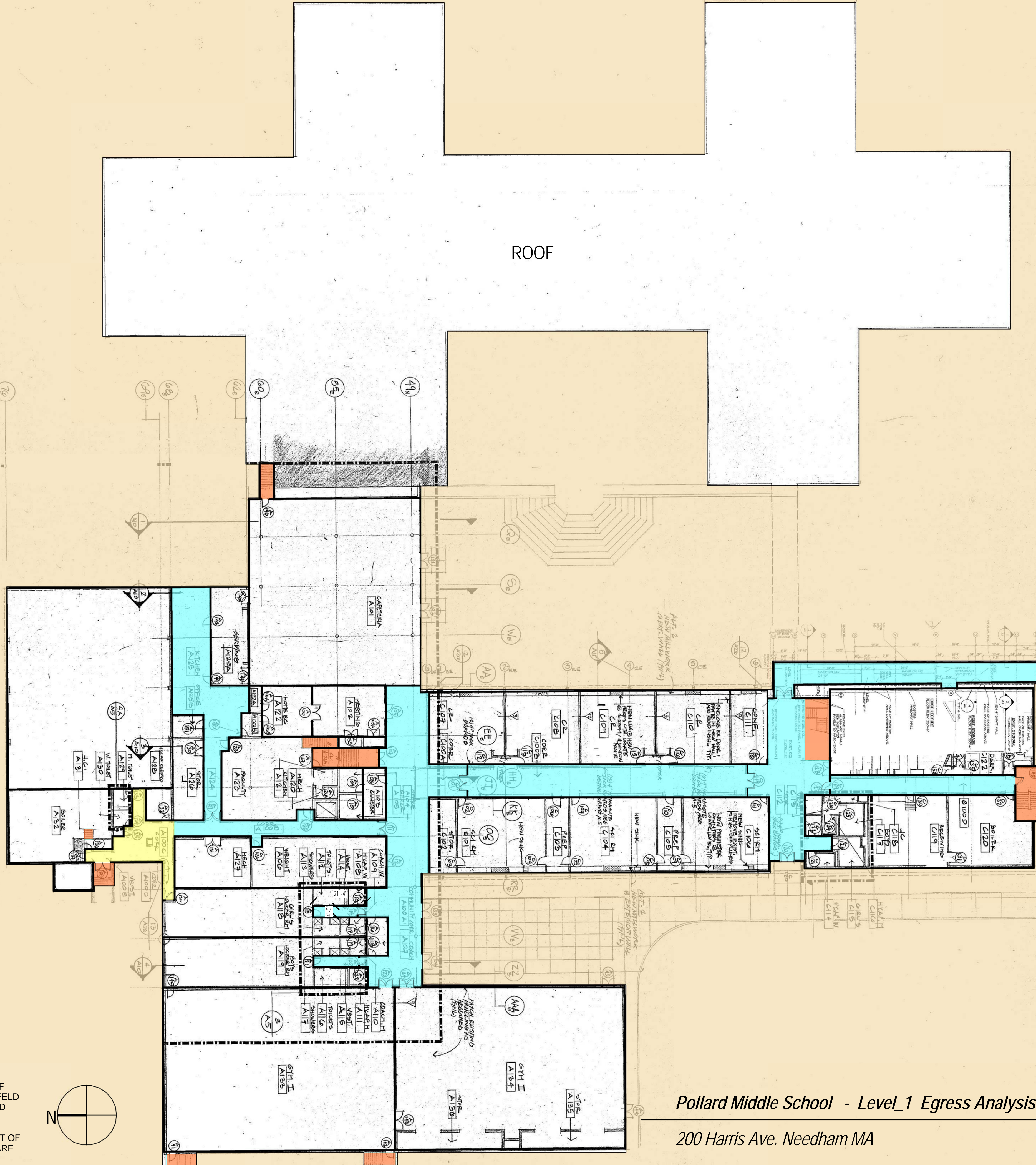
The equipment or system may or may not have aged beyond its intended service life, but the energy efficiency of the equipment or system presents ongoing operational costs that may be significantly reduced by replacement or alteration of the equipment. Examples may include the retrofit of air conditioning equipment, changing fuel sources, adding sustainable energy elements such as solar or geothermal, or energy efficient lighting. This would be typically recommended if there is an anticipated payback within a timeline suitable to the owner.



NOTE : PLANS ARE BASED ON A  
 COMPILATION OF DRAWINGS BY  
 THE OFFICE OF MICHAEL  
 ROSENFELD, INC. ARCHITECTS,  
 WILLIAMS SCITSMEN, INC. AND  
 MARK LINE INDUSTRIES. POST-  
 CONSTRUCTION ALTERATIONS  
 MAY HAVE BEEN MADE. VERIFY  
 EXISTING CONDITIONS IN FIELD  
 PRIOR TO START OF WORK.

**Pollard Middle School - Level\_2 Administration Renovation**  
 200 Harris Ave. Needham MA

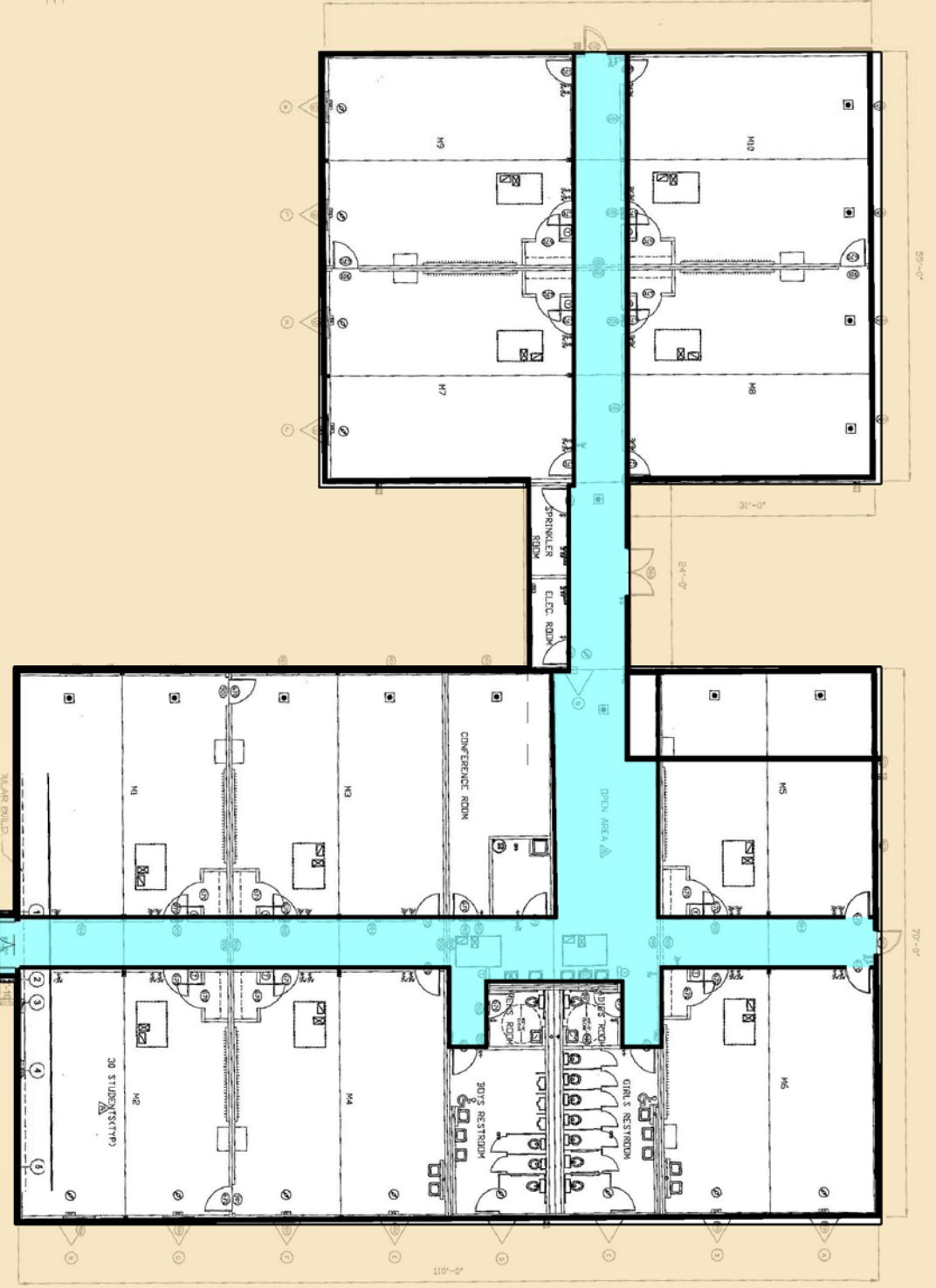




CONDEMNED BRIDGE



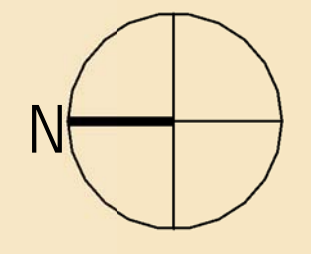
STAIRS AT NORTH GYM



AREA KEY PLAN

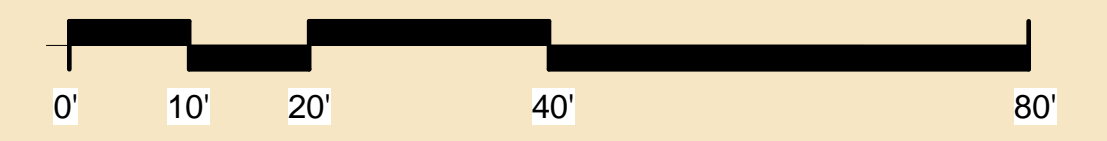
- CORRIDOR
- INTERVENING SPACE
- STAIRS

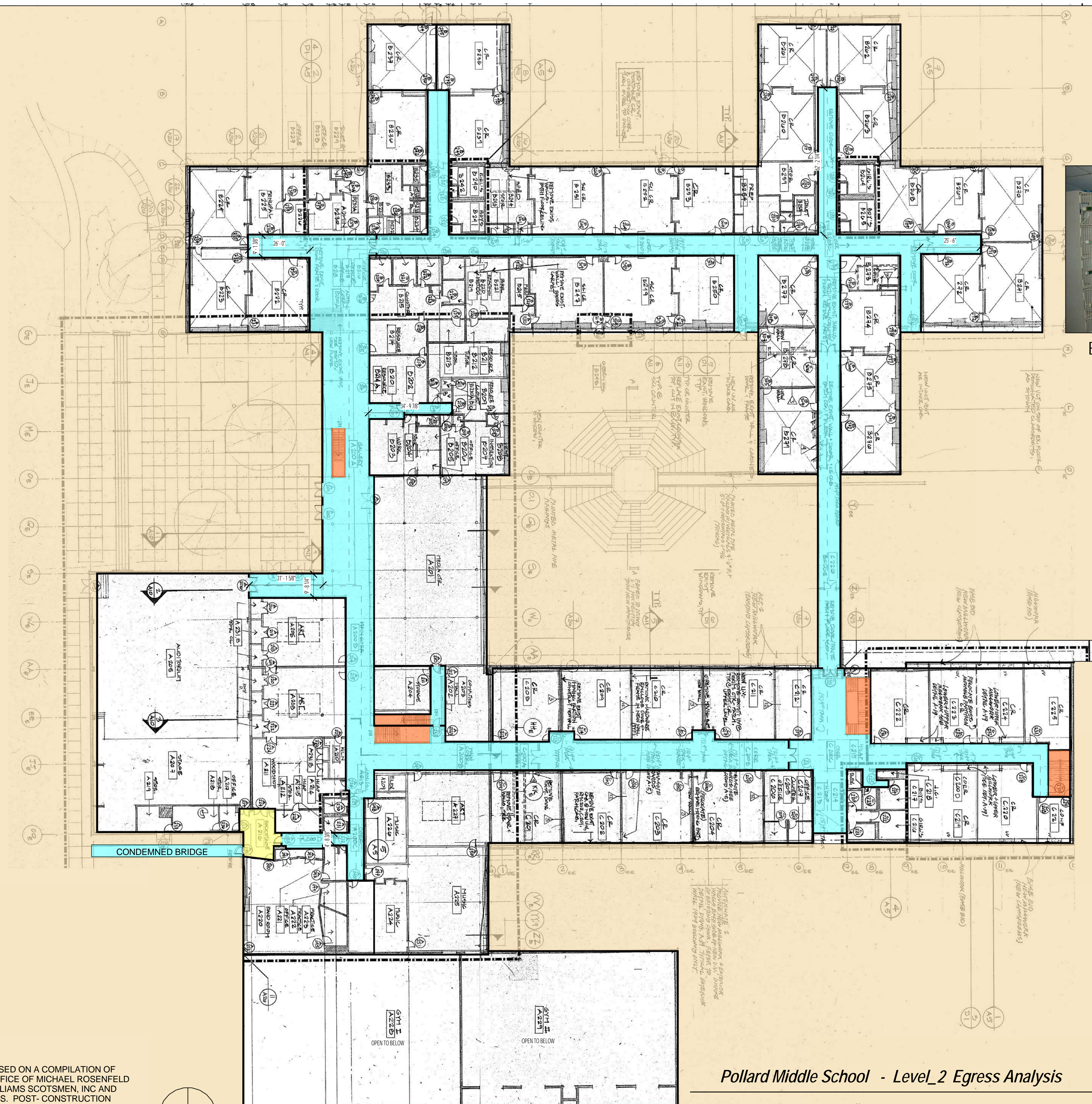
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Pollard Middle School - Level\_1 Egress Analysis

200 Harris Ave. Needham MA

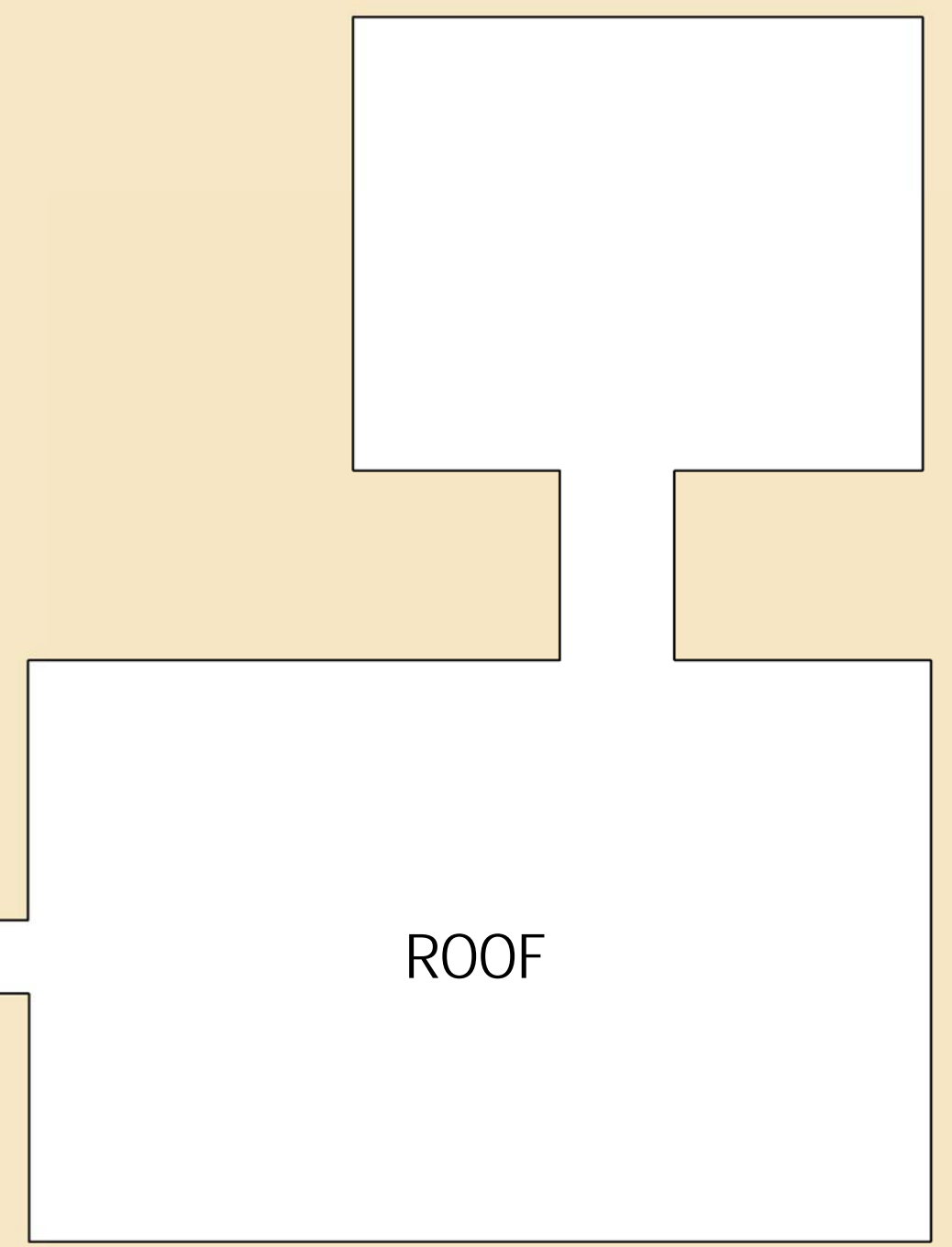




BLOCKED EXIT



BELOW GRADE EXIT UNDER CONDEMNED BRIDGE



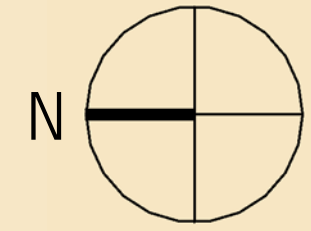
**INTERNATIONAL EXISTING BUILDING CODE REFERENCE:**

- SECTION 703.2.1 EXCEPTION #6 ALLOWS OPEN STAIRS TO REMAIN IF THE BUILDING IS FULLY SPRINKLED.
- SECTION 705.6 EXCEPTION #3 ALLOWS UP TO 70' DEAD END CORRIDORS IF THE BUILDING IS FULLY SPRINKLED.

**AREA KEY PLAN**

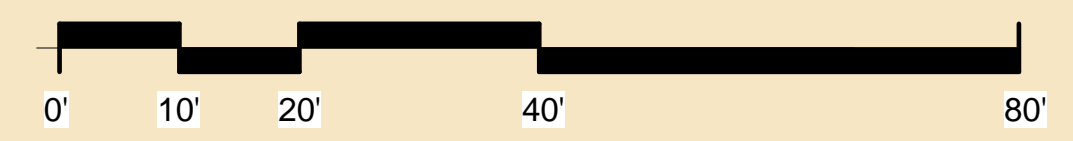
- CORRIDOR
- INTERVENING SPACE
- STAIRS

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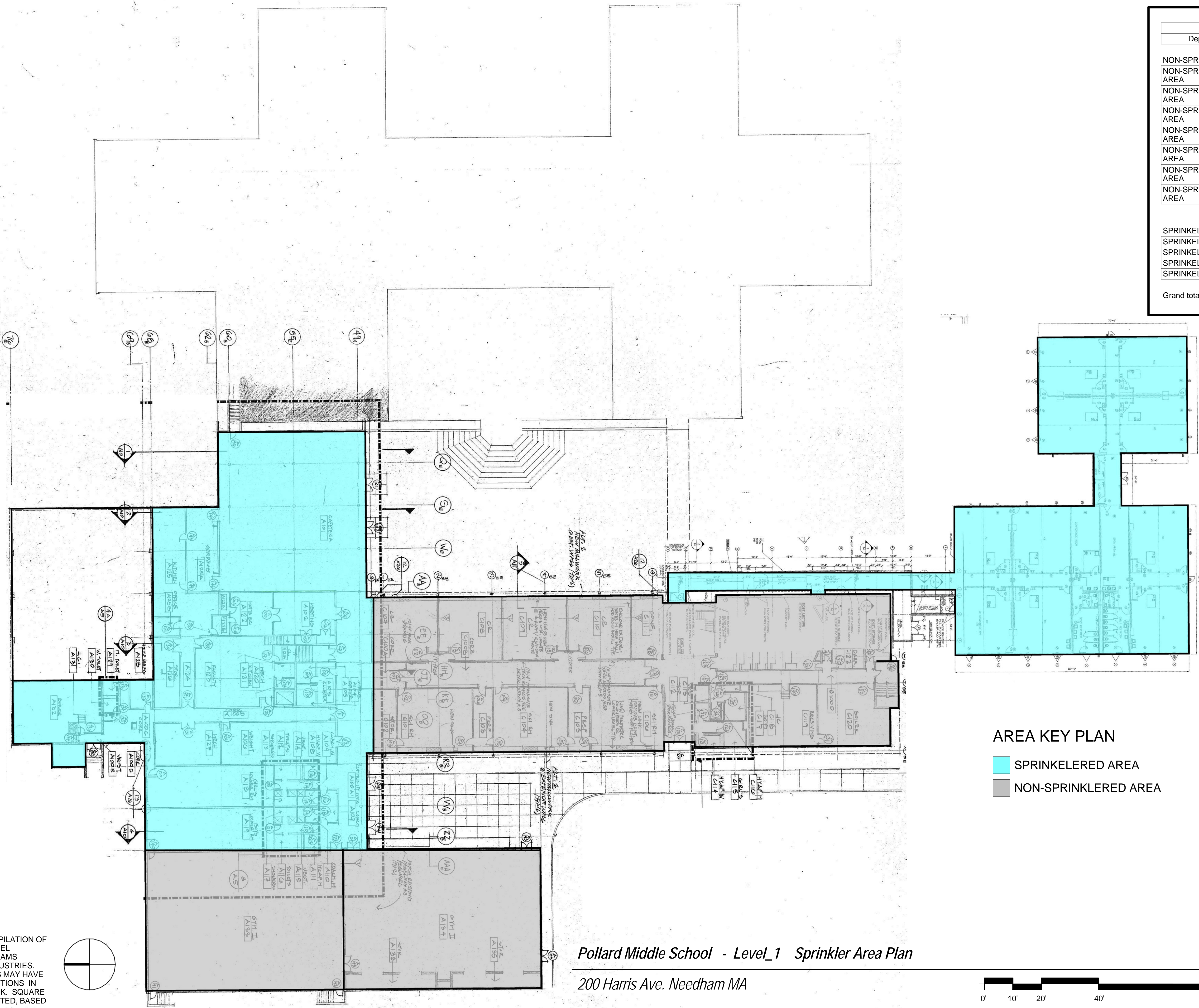




**Pollard Middle School - Level\_2 Egress Analysis**

200 Harris Ave. Needham MA



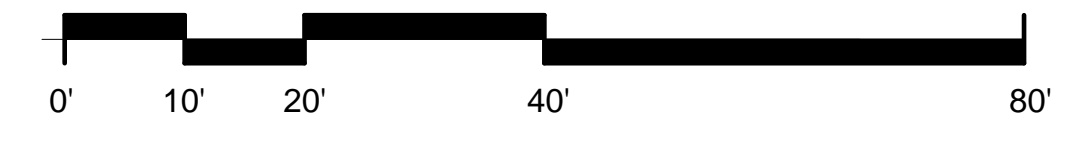
SCHEDULE OF AREA	
Department	Area
<b>NON-SPRINKLERED AREA</b>	
NON-SPRINKLERED AREA	17105 SF
NON-SPRINKLERED AREA	5945 SF
NON-SPRINKLERED AREA	5902 SF
NON-SPRINKLERED AREA	39008 SF
NON-SPRINKLERED AREA	15414 SF
NON-SPRINKLERED AREA	5570 SF
NON-SPRINKLERED AREA	6879 SF
	95824 SF
<b>SPRINKELERED AREA</b>	
SPRINKELERED AREA	11923 SF
SPRINKELERED AREA	12580 SF
SPRINKELERED AREA	20787 SF
SPRINKELERED AREA	5713 SF
	51003 SF
Grand total: 11	146827 SF

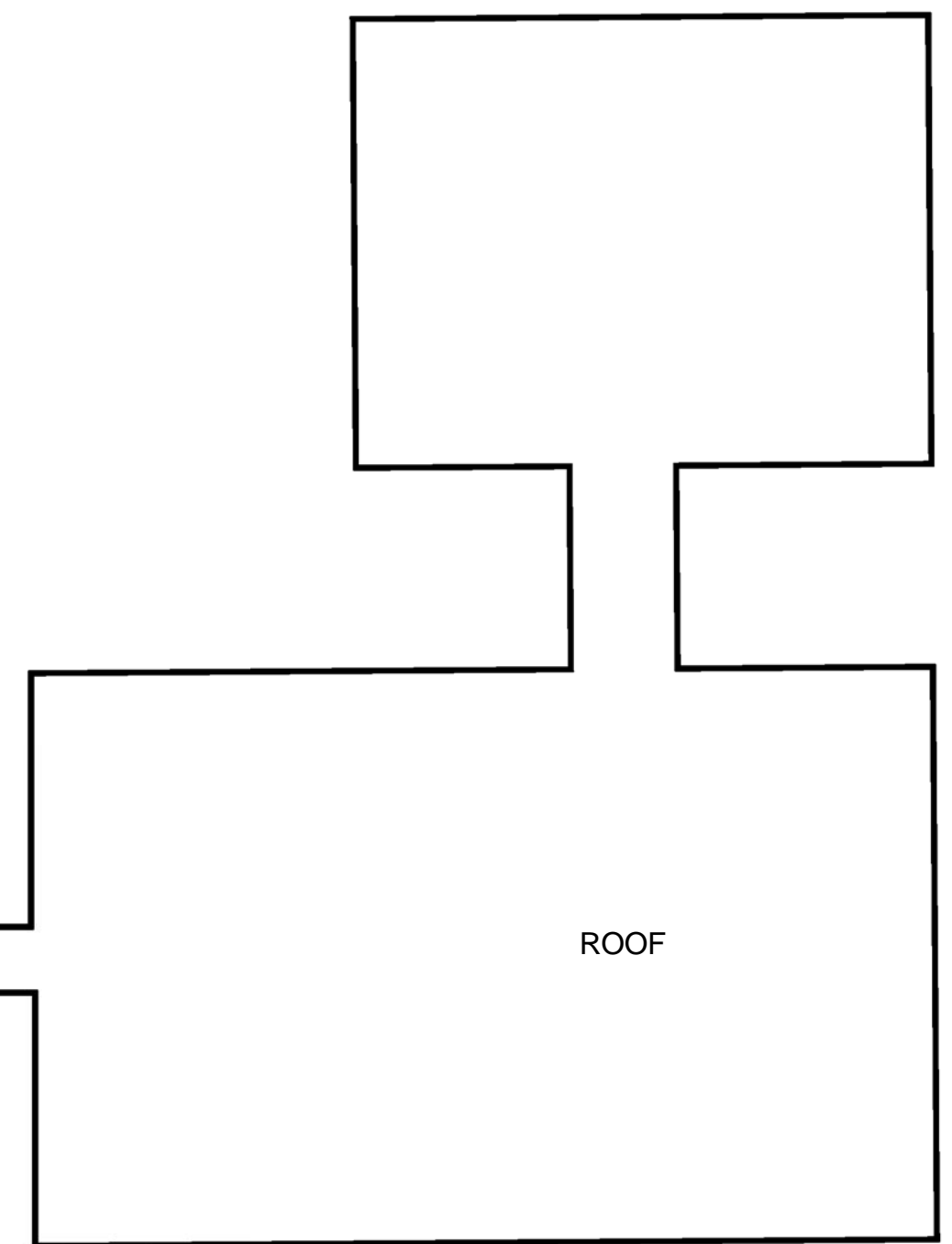
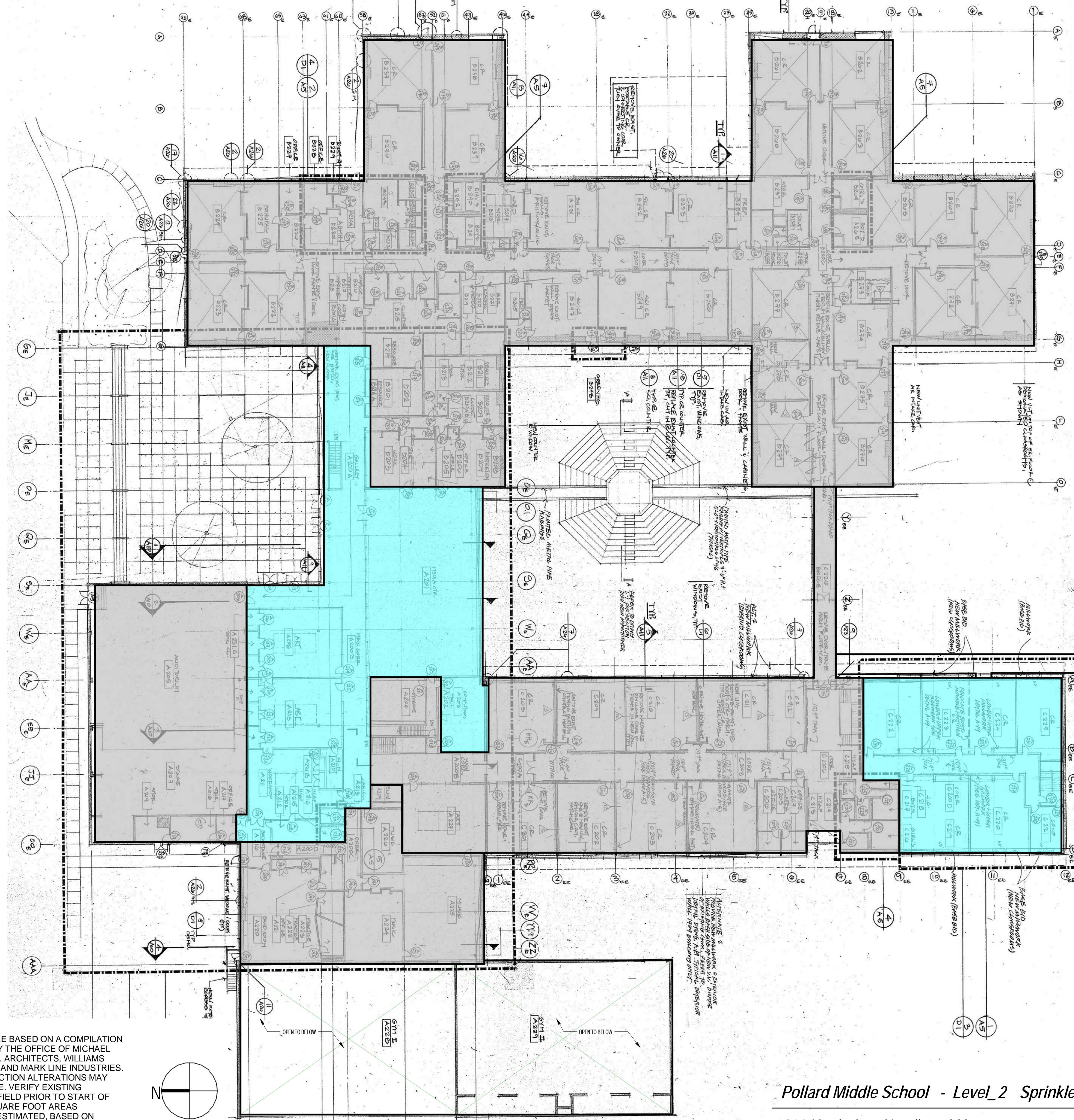


**AREA KEY PLAN**  
 SPRINKELERED AREA  
 NON-SPRINKLERED AREA

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*Pollard Middle School - Level\_1 Sprinkler Area Plan*  
 200 Harris Ave. Needham MA

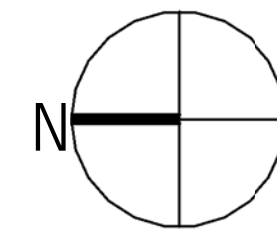




**AREA KEY PLAN**

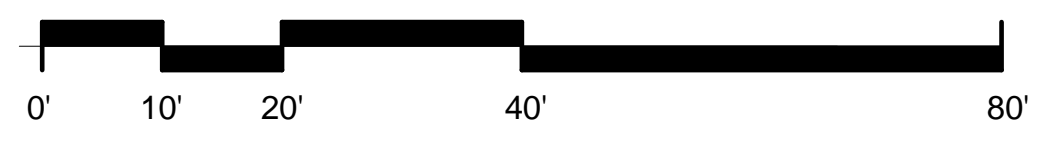
- NON-SPRINKLERED AREA
- SPRINKLERED AREA

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**Pollard Middle School - Level\_2 Sprinkler Area Plan**

200 Harris Ave. Needham MA





## ENERGY SAVINGS PROGRAMS

### Introduction

Because the Town of Needham intends to utilize the Pollard school for an extended time period, it is appropriate for the school to consider energy solutions from the full range of categories below.

**Quick Fix and Low Cost:** These projects require little or no systematic energy consumption tracking or educational focus.

**Energy Awareness:** These projects focus on communications and education to garner support from teachers, students, and staff members for voluntary conservation.

**Performance contracting:** This strategy involves a contract with an Energy Service Company (ESCO) for specific energy services in exchange for “sharing” a portion a portion of the resulting energy servings.

**Energy Tracking and Accounting:** This Advanced strategy involves computerized collecting, recording, and tracking of monthly energy costs at all facilities, enabling facilities managers to control temperatures and HVAC use. Although this method has higher implementation and training costs, it can be used to optimize building design and renovation plans.

In this report, the Design Team has identified several areas that the Pollard School could reduce its energy use. The existing building data and areas identified herein should be used as a starting point to a comprehensive energy retrofit program. There are several energy savings programs and organizations that the school can partner with to take advantage of available funding. These programs require that the school document its current energy use which can then be compared to a benchmark. It is necessary to accurately identify the amount of potential savings in order to establish the appropriate amount of investment.

### Community Energy Reduction Plan

The Green Communities Division of the Massachusetts Office of Energy and Environmental Affairs empowers cities and towns to reduce their energy use and their carbon footprint on the journey towards healthier communities and stronger economies. Involvement in this program opens access to additional funding and would require the town to establish overall energy reduction goals which the Pollard Middle School could play a key part in. See [www.mass.gov](http://www.mass.gov) and click on “Energy, Utilities & Clean Technologies”, then “Green Communities”.

## Programs Available From Your Local Utility (NSTAR)

NSTAR has money available to fund both building systems analysis and physical upgrades. Because NSTAR supplies both electric and gas service to the school it is understood that they will be a key partner in any energy retrofit work. Conversations with the company indicated that, on average, 35% of the energy reduction measures could be covered by funding handled by the utility company. Your Architecture and Engineering team can assist you with this incentive program prior to beginning an improvement project.

## U.S. Green Building Council

The U.S. Green Building Council is a non-profit organization working to make green buildings available to everyone within a generation. The LEED for Existing Buildings rating system is one of several programs they have created to transform the way we buildings are built and maintained. The program helps building owners and operators measure operations, improvements and maintenance on a consistent scale, with the goal of maximizing operational efficiency while minimizing environmental impacts. LEED for Existing Buildings addresses whole-building cleaning and maintenance issues (including chemical use), recycling programs, exterior maintenance programs, and systems upgrades. It can be applied both to existing buildings seeking LEED certification for the first time and to projects previously certified under LEED for New Construction, Schools, or Core & Shell.

Participation in the LEED for Existing Buildings program can indicate to the public that the school is serious about energy savings and whole building health. If involvement in a program is not desired, the school will find useful information and guidelines within the LEED manual that can greatly improve operations.

## Renewable Energy Potential

Once all possible measures have been taken to reduce overall energy demand, it is then time to look into potential on-site renewable energy sources. Renewable energy, whether it is from solar electric, solar thermal or wind, can be a learning opportunity for students and become a teaching tool for instructors. The Massachusetts Clean Energy Center

(<http://www.masscec.com/>) is a good place to start when pursuing renewable energy information and funding.

There is plenty of space on the roof for both solar electric and solar thermal panels. Locating solar thermal panels on the roof close to the kitchen would allow for a short delivery path of preheated hot water. The operating hours of a school coincide well with available sunlight harvesting. Solar hot water also has the quickest investment payback.

Solar electric panels can be located just about anywhere on the roof provided they are out of the way of shade, south facing and the building has been evaluated by a Structural Engineer for supporting new loads. Another option is to locate a group of ground mounted solar electric trackers outside. These units are more efficient than fixed panels and do not interfere with future work on the roof.

Wind power may also be an option for the school depending on local wind data. Wind turbines are an excellent learning tool for students that may not otherwise get a chance to see them. Power can be tied to the grid and returned to the school in the form of end of the year credits, depending on how the utility company handles it. Local approval can be a significant hurdle to wind projects.

There is also an opportunity for the school to specify that the power it receives from the utility company be from renewable sources with a Power Purchase Agreement (PPA). The NSTAR Green Program allows customers to specify that either 50% or 100% of their power comes from regional large scale wind farms in upstate New York and Maine. There is a cost premium to this option but it would also serve as a learning tool for students. This program is certified by Green-e Energy.

## Operation and Maintenance Manual

Implementation and oversight of energy savings strategies by facilities staff is critical to achieving energy goals set forth by the school and Design team. Employees who occupy and maintain the school play a key part in seeing through a comprehensive energy savings plan. Provided under separate cover is the *Guide to Operation and Maintaining Energy Smart Schools* published by the U.S. Department of Energy. This document has many tips that can assist maintenance staff with intermediate to advanced knowledge of building systems in identifying and achieving energy savings.