



**MONADNOCK REGIONAL
SCHOOL DISTRICT**

**ELEMENTARY LEVEL DISTRICT WIDE
FACILITY AND SPACE NEEDS
ASSESSMENT STUDY**

OCTOBER 31, 2019

 **Barker Architects** PLLC

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PURPOSE AND ASSUMPTIONS

PURPOSE

The charge of this study is to analyze the building and space needs of the elementary schools of the Monadnock Regional School District and suggest alternatives with associated costs. These schools include the schools in the towns of Fitzwilliam, Gilsum, Swanzey and Troy. The intent is to create a comprehensive, broad picture analysis of the building for use in future planning. Further design and planning will be needed for developing the project and getting public approval. The report will simply provide the statement of need and basic data for beginning that work.

This report covers the school buildings in the Monadnock Regional School District including:

- Mt Caesar Elementary School
- Cutler Elementary School
- Dr. George S. Emerson Elementary School
- Gilsum STEAM Academy
- Troy Elementary School

Final decisions on building options will need to rely heavily on public input to fully understand opportunities and constraints that face this district.

ASSUMPTIONS

Existing Conditions

The buildings were visited at various times throughout 2019. Original drawings documenting a large part of the existing buildings were obtained. Actual dimensions were not verified due to the volume of space studied. Inaccuracies were noticed in some drawings, but these issues do not affect the outcome of the study. Verification of existing conditions should be part of any final plan.

Building and Life Safety Codes and Department of Education Rules

The work outlined is based on the following codes; The 2015 NFPA 101 Life Safety Code, The State Building Code (2015 International Building Code, 2015 International Existing Building Code, 2015 Mechanical Code, 2017 National Electric Code, and others), The State Energy Code and The State Barrier Free Access Code. Because of

the generalized scope of the study it is not possible to list every possible item that falls within these codes. It is assumed that any areas impacted by proposed changes would have all code issues resolved.

There is often a misconception that code compliance problems are “grandfathered” if they have existed for a long time. The State of NH Department of Education Administrative Rules (ED 306.07) requires all approved schools to meet NFPA 101 Life Safety Code as well as other codes. Other codes such as the State of NH Fire Code and the State of NH Building Code refer to this code as well thus giving local code enforcement officers the authority to require upgrades regardless of how long the situation has existed. However, it happens quite often that review for compliance is not done until a major construction project is proposed.

Chapter 15 of NFPA 101 is specifically designed for existing educational facilities. We suggest that the local authorities as well as the State Fire Marshal’s office be invited to walk through the building and review this study to ensure that the District fully understands what is required.

Enrollment Projections

Understanding anticipated enrollments is the first step in understanding the function of a school facility. As important to the calculations as the total number of students are the individual class sizes. It is possible for a school facility to reach maximum capacity long before the stated capacity if one year’s enrollment is much larger than others. One large cohort of students will put stress on the core facilities as if the entire school were much larger. It is therefore important to design the core facilities for a larger number of students than simply the anticipated total.

This report includes enrollment projections based on data provided by the District. Actual enrollments can be significantly different and should be monitored each year. The projections are a tool for identifying trends that are useful in determining design parameters.

Program Data

It is important to analyze the building usage in order to determine areas that might require changes to improve the function of the building. The first step in identifying space needs is to develop the program or a list of spaces and their correlating size. To do this we rely on several sources including; NH Department of Education Standards, Association for Learning Environments (formerly; Council for Educational Facility Planners Inc.), other State Standards, examples of other similar projects and our own experience.

We also, possibly more importantly, rely on the Owner to supply us information for their programs. This was collected by interviewing the Principal and by analyzing how the building is currently used. This data includes; enrollment per course, periods per day, meetings per week and other information. Changes in this data would therefore change the results in this report.

It is also important to note that we did not always use the “minimum” standards when analyzing the data. Class size in particular can greatly affect the space needs of a

school. Current trends are to limit class sizes. For this study we used numbers that were neither the absolute maximum nor minimum but rather, closely match the average for schools in the state of NH.

Costs

There are several sources that we rely on for cost data. RS Means is a construction cost index that helps establish a range of costs. Other similar projects are also used. For a report with this broad a scope, however, it is not possible to produce accurate estimates due to the level of detail. Also that cost data is almost immediately outdated due to inflation. We have prepared this report based on an average cost per square foot per task. This will give us an “Order of Magnitude” estimate on cost for determining budgets.

New construction costs are based on the NH Department of Education cost per square foot maximum cap. This helps establish the benchmark for the limit any project generated from this report needs to meet. It is not meant as a final construction estimate.

All costs are given in “today’s numbers”. Inflation for building materials is very difficult to forecast. At the time of this report, many resources are seeing increased inflation. The costs in this study will need to be verified before proceeding with a construction project.

Expectations

As with any renovation project there are areas that will be left undone. It is not economically feasible to upgrade every aspect of an older building to meet the same criteria of new construction. It is important to set limits on expectations to avoid an endless amount of project growth.

BUILDING NEEDS ANALYSIS

This section studies the existing facility for deficiencies relating to the building or property. Most data were obtained from previous studies and additional data was generated from site visits, interview with staff and extracted from original drawings.

Overall, the district schools have some similar traits. All have had multiple additions over the decades. This has created floor plans that developed very organically and not with long-term planning in mind. There are many awkward or poorly utilized spaces that lowers the overall building efficiency. Many spaces have been repurposed from the original intent but not with the greatest success. This functional obsolescence is typical in any older educational facility but is particularly severe here.

Security in schools is currently a very hot topic. Since Columbine we have been designing schools to be more secure. Before Columbine there was little worry about the public accessing school facilities, but we have since learned that this is a substantial problem. Although we plan for the worst-case event with a shooter entering the building, there are many smaller instances of security breaches in schools that do not become headline news but are still very important to prepare for. All schools should have a secure entrance with a direct connection to the main office. Few of the schools in the MRSD have this in place.

Many of the schools have many exit doors. These were probably installed for life safety purposes but over the years many are not used or no longer have proper hardware or exit discharge to be used as such. The effect is no perceptible increase in life safety but a significant decline in security since each exit also represents a possible point of entry. This reviewer found at least one instance of a door left unlocked after school hours.

It is worth noting that all the district facilities are clean and well maintained. The staff obviously put pride into the buildings, and this helps with the value of education provided. This intent of this report however is to point out the deficiencies and this should not be misconstrued with criticism of the staff.

Mt Caesar has recently gone through a renovation/addition project. Although some deficiencies remain, overall this school is the closest to an acceptable level of condition and will be used by this study as the standard by which all facilities will be graded. All the schools are fully sprinklered which is very important and helps with many code issues.

Items identified are cataloged with costs listed by priority. High priority items are those that need to be done within the next two years. They include issues such as code deficiencies or maintenance items that could cause damage if left undone. Medium priority items should be completed within five to ten years. They are important but do not pose an immediate need. Low priority items are worth considering due to cost savings or improved efficiency. They could be done at any time and often can be done more cost effectively if combined within a larger project.

CUTLER

General Observations

Cutler Elementary School is typical of the elementary schools in the Monadnock Regional District. The original building is an older, small wood framed schoolhouse and over the decades has received multiple additions with the original now just a small part of the overall school and no longer the focus point. The complex is sprawling and at times feels disjointed. The front entrance is not the obvious original front entrance but rather a very understated doorway on the side alley. The gymnasium has its own entrance along that alley. The entrance door between the portable classrooms is the most accessible entrance but this is the furthest from any administrative space.

Site and Exterior

Cutler sits on a very small piece of property but utilizes adjoining town land. The building is tight to property lines on two sides making an addition difficult. The topography is flat. The drop-off/pick-up for cars and buses are not well laid out. The driveway for the buses is narrow and has resulted in buses having collided with the building. The driveway for the cars is short and provides little queuing space and blocks parking spaces when in use.

The exterior has numerous needs. The fire escape stairs do not meet code for exit discharge. The last addition has a significant amount of mold on the split-faced concrete block. This is caused by moisture. The source of this should be investigated and the mold cleaned. Many of the windows need replacement.

Most of the exterior masonry joints need to be resealed. Some appear to have opened up meaning there could be movement in the wall. This does not appear to be structural but should be monitored.

Building and Life Safety Code

The original building with the early 3-story addition does not meet code in several ways. The top floor does not have a valid second means of egress. The fire escape stair, while possibly to code when installed, is old and not to current standards. The stair that serves this floor has breaches in the fire rating and discharges back into the building, not to the exterior. The corridors need to be resistant to the passage of smoke and the stair needs to be fire rated. Some doors have holes that compromise this.

The handicap accessibility is provided by a stair lift which is a hazard for egress and not a proper means of supplying accessibility. There are numerous exterior doors that at one time were provided for egress but that no longer function well or safe per current standards.

The building is essentially three separate buildings for code review; the original with the early 3-story additions, the 1-story classroom and gymnasium addition and the 2 portable classrooms. The portable classrooms, although meeting code, are not the same quality as the other two buildings and should probably be removed.

The toilet facilities are largely not code compliant and do not provide an adequate number of fixtures to meet building code. The main problem with quantity being the lack of fixtures for assembly in the gymnasium.

Indoor Environmental Quality

The ventilation is primarily delivered through unit ventilators. This type of system was common when the building was first constructed but is no longer considered appropriate for schools due to noise and inefficiency. An entirely new system is recommended.

The control system for the heating and cooling is mostly archaic. It does not allow for effective monitoring and control. A new digitally controlled system would allow for more efficient operation of the systems and produce data that can be used to troubleshoot problems. There is just limited air conditioning for the facility.

Many of the light fixtures are due to be replaced. This would also give the opportunity to install much more efficient and better-quality lighting such as indirect dimmable LED's.

Interior Finishes

The interior finishes are in various stages of wear with most needing some attention. The flooring needs to be replaced in large areas of the building. The walls are drywall and show wear. The ceilings are mostly drywall with mechanical and electrical systems exposed. The ceilings that are suspended ceilings have fiberglass tiles which are residential in quality and show wear.

Security and Safety

The main entrance does not have a secure vestibule. Rearranging of the administrative offices to get the reception connected to the entrance should be considered. The gym can be locked off for public use but an even more secure arrangement should be considered.

EMERSON

General Observations

Emerson Elementary School is typical of the elementary schools in the Monadnock Regional District. The original building is an older, small wood framed schoolhouse. Over the decades it has received multiple additions and now the original is a small part of the overall school and no longer the focus point. The community shows strong support for the school and it is well maintained. Many of the components however are showing serious wear and age.

Site and Exterior

Emerson sits on 16 acres of land and has generous space for buildings, driveways and play areas. The topography is gently sloped. The current layout for car and bus drop-off/pick-up seems to work but could be improved.

Because of the various ages of the building there are various needs depending on the area in question. On the exterior there is a need for new windows and new roofs in certain areas.

Building and Life Safety Code

The facility is mostly up to current codes however there are some areas in need of improvement. The original building does not meet several aspects of the code. The lower level has several deficiencies. This area is relatively small and a better solution to upgrading this area might be to relocate the programs housed there to a code compliant section of the building.

The building is mostly wood framed and structurally in reasonable shape. The structure was not designed and built under today's codes, therefore may not meet many current code requirements. The buildings however do not show significant deflection or failure therefore do not require immediate repair. However, if a major addition were to be contemplated, the existing buildings would need to be analyzed for any changes in load that it might receive.

The toilet facilities are largely not code compliant and do not provide an adequate number of fixtures to meet building code. Renovating and possibly expanding the toilet facilities is recommended.

Indoor Environmental Quality

The ventilation is primarily delivered through unit ventilators. Some have been replaced but many are original. This type of system was common when the building was first constructed but is no longer considered appropriate for schools due to noise and inefficiency.

The control system for the heating and cooling is mostly archaic. It does not allow for effective monitoring and control. A new digitally controlled system would allow for more efficient operation of the systems and produce data that can be used to troubleshoot problems. There is just limited air conditioning for the facility.

Many of the light fixtures have received recent upgrades, however this technology is rapidly changing, and further upgrades could be warranted. This would also give the opportunity to install much more efficient and better-quality lighting such as indirect dimmable LED's.

The intercom system is relatively new. It may be worth considering an integrating the system with the other elementary schools.

Interior Finishes

The interior finishes are in various stages of wear with most needing some attention. The ceilings in the older parts of the building are in poor shape and need to be replaced. Some areas of the 1970's wing should receive new floor tile. The doors in the older parts of the building are delaminating and starting to splinter. Some rooms should receive additional cabinetry.

Security and Safety

The main entrance does not have a secure vestibule. Rearranging of the administrative offices to get the reception connected to the entrance should be considered. The gym can be locked off for public use, but an even more secure arrangement should be considered.

GILSUM

General Observations

Gilsum STEAM Academy has a somewhat unique design compared with the rest of the schools in the district. First, it is the smallest with the smallest enrollment. Secondly, the gymnasium and cafeteria is considered the town community center. The design of the community center is attractive, but the arrangement and the existence of a courtyard poses challenges.

Site and Exterior

The site provides enough space for parking and play areas. It has areas of steep slopes and does not allow for access around the entire facility. There is no separation of car and bus traffic. The exterior of the building has some wear, but general maintenance will take care of most of the problems. The courtyard can be an attractive area but also a nuisance for maintenance, snow removal and the inevitable removal of the oil tank. Probably most importantly, the main entrance to the school is inside the courtyard with the main entrance for the community center closer to the parking.

Building and Life Safety Code

The facility has a few issues with code. The kindergarten classroom is over 1,000 square feet and therefore is required to have two separate means of egress. Due to the slope of the grade outside the classroom it is not feasible to have an exterior exit door. There is an interior door to the adjoining classroom, but the intervening room exit is not remote from the kindergarten exit making that door non-compliant. Otherwise, the schools small size helps to evacuate the occupants quickly.

The building is mostly wood framed and structurally in reasonable shape. The structure was not designed and built under today's codes, therefore may not meet many current code requirements. The buildings however do not show significant deflection or failure therefore do not require immediate repair. However, if a major addition were to be contemplated, the existing buildings would need to be analyzed for any changes in load that it might receive.

The toilet facilities are not all code compliant and do not provide an adequate number of fixtures to meet building code. The toilet facilities for the assembly space are undersized but do meet ADA. The main gang toilets are not handicap accessible. Renovating and possibly expanding the toilet facilities is recommended.

Indoor Environmental Quality

The ventilation is primarily delivered through unit ventilators that existing in most classroom. Some have been replaced but many are original. This type of system was common when the building was first constructed but is no longer considered appropriate for schools due to noise and inefficiency.

The control system for the heating and cooling is mostly archaic. It does not allow for effective monitoring and control. A new digitally controlled system would allow for more efficient operation of the systems and produce data that can be used to troubleshoot problems. There is just limited air conditioning for the facility.

The light fixtures are largely fluorescents and an upgrade to LED's would save on energy. Additionally, LED's can be dimmable and provide much better-quality lighting than fluorescent or incandescent lights.

The intercom system is archaic and should be replaced. It may be worth considering an integrated system with the other elementary schools.

Interior Finishes

The interior finishes are in various stages of wear with most needing some attention. The ceilings throughout everywhere but the community center need to be replaced. There is a possibility of floor tiles containing asbestos to exist in the building. This should be abated, and the flooring replaced.

Security and Safety

The main entrance is deep inside the courtyard and not visible from the parking lot. Most visitors probably use the entrance to the community center which means that by the time they reach the main office they have mixed with students. A means of getting visitors to enter directly into the main office should be implemented.

MT CAESAR

General Observations

Mt Caesar has had recent renovations and additions and therefore is the most up-to-date facility with the fewest issues. That said, there are some needs to be addressed.

Site and Exterior

The site is the largest of all the elementary schools in the district. It is located near the Middle/High School and SAU. The typography is flat with ample room for expansion. The driveways and parking are being studied for improvement.

Building and Life Safety Code

There are a few small code issues. One kindergarten classroom and the preschool classrooms are over 1,000 square feet and required a second means of egress. There is an interior door to the adjoining classrooms, but the intervening room exit is not remote

from making that door non-compliant. One classroom lacks the proper width for its entrance door.

The toilet facilities are not all code compliant and although there appears to be close to the necessary quantity of fixtures, there is not enough for assembly use. Since the cafeteria is not a true assembly space this might not be a large problem. Toilet facilities for the lower grades, particularly the kindergarten is recommended.

Indoor Environmental Quality

The entire ventilation system has been recently upgraded and performing well. Lighting is likewise all new.

Interior Finishes

The interior finishes are mostly new. There are some remaining areas that have not been fully renovated.

Security and Safety

The main office is remote from the main entrance. This is a serious problem that should be addressed.

TROY

General Observations

Troy has had the fewest in additions and renovations and in some ways has benefited from this but in many other tends to suffer. The positive is that the layout is close to the original design intent, but the negative is that many issues that have developed over time are left unaddressed.

Site and Exterior

The site is large in acreage but only a small portion is usable. The topography immediately around and to the west is relatively flat and open but at the edge of the pavement the land slopes dramatically away. This leaves little opportunity for expansion. The original building is 3-stories which keeps the footprint relatively small for the amount of space and helps with site issues. There is a separate bus drop-off/pick-up area, but car pick-up\drop-off is less well defined.

The main entrance is not easily identifiable and not secure.

The superstructure is in relatively good shape for the age but many less durable components such as the roof, windows and doors need replacement.

Building and Life Safety Code

The facility has a numerous code issues. The original building has two stairs connected which was typical for the vintage construction. These were often design for separating boys and girls and not meant for separate egress. Current code requires that every level

must have legitimate fire rated exits and these stairs do not provide that. Some rooms have their own exit to the exterior but some, particularly on the upper levels are suspect on how safe they are.

Kindergarten and 1st Grade are limited to Levels of Exit Discharge unless the space is provided its own dedicated exit. This includes special education or core facilities where there is more than one student per teacher. Some rooms do not meet this.

The building is masonry bearing walls with wood framing. It was good quality at the time of construction but is unlikely to meet current structural code for issues such as seismic loads.

The building is not fully handicap accessible. The main entrance has stairs and there are multiple stairs and ramps inside the building. There is a stair lift to some spaces but not elevator. The toilet facilities are not handicap accessible.

Indoor Environmental Quality

The ventilation is archaic and in need of replacement. The control system for the heating and cooling is archaic if almost non-existent. This does not allow for effective monitoring and control. A new digitally controlled system would allow for more efficient operation of the systems and produce data that can be used to trouble-shoot problems. There is just limited air conditioning for the facility.

The light fixtures are older and inefficient. Upgrading to dimmable LED's would provide more energy efficient and much better-quality lighting.

The intercom system is archaic and should be replaced. It may be worth considering an integrated system with the other elementary schools.

Interior Finishes

The interior finishes are mostly in need of replacement. The ceilings throughout the facility but most notably in the gymnasium need to be replaced. Some walls are still lath and plaster and should be replaced. Other issues include bringing the casework and equipment up to district standards.

Security and Safety

The main entrance is not secure. Although there is an office near the entry door, visitors have access to the school once through the main doors. The location does not provide good visibility to the staff of visitors approaching the building.

PROGRAM ANALYSIS

Programs have changed over the years and older buildings can become inefficient without modifications. Additions often exacerbate the problem by prohibiting building components from functioning the way they were originally meant.

The elementary schools in the Monadnock Regional School District are a good example of this. All the facilities have had numerous additions, and these have created some awkward spaces. Many rooms have been cooped from a previous use to a new use as the education style has changed. Many newer problems in schools such as safety and security have resulted in the improper placement of building elements such as a secure front entrance and main office.

Enrollment Projections

The first step in preparing space needs recommendations is to determine the number of students the building will be designed to serve. Enrollments are predicted in this report using a nomothetic calculation or an estimate based on probability. For this study we used a cohort survival enrollment projection. Historic enrollments and births are used to calculate the likelihood of future students moving in or out of the district. Figures are calculated using a 5-year average, 3-year weighted average and simple projection. Creating projections beyond what is available for data is unreliable. Therefore only 5 years worth of enrollments are reliable for the elementary school level which reflects the available birth data.

The difficulty in preparing enrollment projections is determining probable future enrollments for kindergarten. Once that is established tracking the progression of students through the grades is more set. Many school districts throughout New Hampshire have experienced a drop in enrollments due to low birth rates. Demographics show that Millennials are now the largest living generation. Millennials are having fewer children and having them later in life. They are just reaching the age where their children are starting to attend school. This means that there could be a flattening of the decline seen in recent years and possibly a slow incline in enrollments starting soon and into the foreseeable future.

Economic factors also play an important role in enrollments. The towns that make up the Monadnock Regional School District have a lower median income than the average town in New Hampshire. This may make the area attractive for residence looking for low-cost housing but can drive away upwardly mobile young professionals looking for quality schools. This is demonstrated by a sharp decline in historic enrollments in the 3rd and 4th Grades. This hits Swanzey and Fitzwilliam relatively hard.

Another difficulty in preparing enrollment projections is the small class size per school. A small deviation in the data can cause a large and inaccurate deviation in the results. This shows most in Gilsum where the class sizes are the smallest.

For the purposes of this study the design capacity of each school will be set as the current enrollments indicate with some adjustment for possible spikes in the future. The enrollments and birth rates should be closely monitored for changes. For now the projections show a decline for the foreseeable future therefore additional capacity is not warranted.

Capacity Calculations

Once a target capacity is determined using the enrollment projections the number of teaching stations is calculated (Table E – Curriculum Worksheet). The target capacity is represented by two numbers: the design capacity and the core capacity.

The design capacity is defined as the number of students that the building design will accommodate and function normally. The design capacity uses the average amount of students in each of the classrooms to generate an overall picture of the functionality of the school. It is possible that the school could exceed the designated design capacity but with every additional student there would be some decrease in the quality of education.

The core capacity is defined as the number of students that the core areas of the building will accommodate and function normally even with peak years and future growth factored in. The core areas are further defined as the spaces that all students in all the grades use to some degree. They include the gymnasium, library, main office, cafeteria, and other similar areas. These areas need to be designed to accommodate the peak number of students possible in any one particular grade or grouping. The effect is that the core capacity needs to be a higher amount than the design capacity to handle anomalies that invariably occur in enrollments.

The design capacity is divided into groups representing individual grades and/or by curriculum depending on grade level. The average class size, the number of meetings per week and a utilization rate all factor into the total number of rooms required. From this data a core capacity is established using a maximum room capacity multiplied by the number of teaching stations.

The utilization rate represents unutilized space that is necessary to schedule activities and otherwise allow a school to function smoothly. Utilization rates at elementary schools can be as high as 90% while at middle and high schools where students change class throughout the day the utilization rates are usually as low as 85% or 75%.

Space Needs

The Space Needs Worksheets (Table F) utilized the capacity calculations to create a program of space required for each building. The number of teaching stations is multiplied by the required space for each. The net of the program areas is multiplied by a factor that represents non-program space such as corridors, toilet rooms, thickness of walls, and other miscellaneous areas.

This creates a snapshot of the school if that school were to be built new. This is compared to the actual spaces. Program deficiencies and inadequacies in space need can then be identified.

General Observations

Each elementary school in the Monadnock Regional School District is somewhat unique in how the program is worked out in its facility. All have become somewhat sprawling in the layout which can have adverse effects on security, supervision, ergonomics and collaboration. The classrooms themselves are different sizes and

shapes with many not meeting the NH Department of Education standards. These variations can create situations where one student's experience is very different from one school to the next or even from one classroom to the next.

Some schools practice multi-age classrooms to be able to better utilize available space. This standard however is not universally practiced, even within the same school. This seems to be driven from a space-needs pressure, not driven by education quality.

Swanzy students are shared between Mt Caesar (PK-2) and Cutler (3-6). These two are the only two schools in the district that do that. This helps with leveling the class size but also means that students that attend here have an extra transition than other towns. This may help to explain the large drop in enrollments in Swanzy for grade 3 and grade 4.

The library appears to be almost an afterthought in all the schools. Libraries have changed in the last few decades and now rely more on technology than they have in the past. Even such, libraries perform an important role of being a hub for the school they serve. This does not seem to exist in the Monadnock Regional School District.

The challenge here is to provide a means of leveling the design of each school to standard that allows a reasonably equal quality of education to every student.

CUTLER

General Observations

Cutler is a good example of an organically developed floor plan that has lost good planning. Core facilities are spread throughout the building making access and supervision less efficient. The library is in the basement area and not easily utilized after hours. The principal is not connected with the main office. Special Education is largely also in the basement which does not work well with inclusion.

Educational Space

Most regular classrooms are adequate in size but do range from a low of 650 square feet to just about 900 square feet. Art and Music share a space that is 830 square feet which is small for that program.

Core Space

Core spaces are reasonably adequate in size for the design capacity but again, are not well organized.

EMERSON

General Observations

Emerson likewise developed very organically. The main office suite is at one end of the building, near but not directly connected with the main entrance. Many of the corridors have spaces only on one side meaning corridors are longer and take up more space than a typical school.

Educational Space

Most regular classrooms are adequate and uniform in size close to the 900 square foot target.

Core Space

Core spaces are reasonably adequate in size with the library the one exception. The library is in a below-grade space in the original building. This is not very appropriate because it does not give good access to students.

GILSUM

General Observations

Gilsum is the smallest school in the district but has received many additions over the years. The main office suite is in the central part of the building, which is good for supervision, but it is not directly connected with the main entrance which is bad for security.

Educational Space

The classrooms vary in size but are on average quite large. They are also multi-age classrooms, so the extra size is important. The number of classroom work for the current enrollments but would not work at a higher capacity.

Core Space

The gymnasium and cafeteria are large for the design capacity and it is odd that this school, which is the smallest in the district, is the only school with both. The library and offices are small.

MT CAESAR

General Observations

Mt Caesar is the school that has had the most attention for renovations and additions but is no better organized in terms of program.

Educational Space

The Kindergarten classrooms vary in size from 1023 square feet down to 633 square feet which is considerably lower than the NH Department of Education standard of 1,000 square feet. Regular classrooms vary less with the average just about at the state recommendation of 900 square feet. This the only school with separate art and music.

Core Space

There does not exist a true gymnasium here. The multi-purpose room is too small for physical education and serves primarily as a cafeteria. Administration is close to the center of the building but is separated from the main entrance by the boiler room. The

library is in a former classroom and is located in the center of one of the classroom wings.

TROY

General Observations

Troy has most of the program spaces in the original 1890's schoolhouse. This model worked well at the time and can work well again but currently has some challenges. The addition is not well integrated into the original building making communication between the space awkward.

Educational Space

The classrooms are small. Another problem seems to be adjacencies. The preschool is in a small classroom and adjacent to the 1st Grade classroom which is remote from the other 1st Grade rooms.

Core Space

The core facilities appear to be adequate in size with notable exceptions being the kitchen and the library. Again, another problem is adjacencies with spaces such as the nurse not being centrally located.

CONCLUSIONS

PLANNING

There are questions to consider that involves much more than “How many students?” and “How much will it cost?”. Each community needs to consider the benefits and concessions of future plans. Core at this is the question of “Neighborhood Schools vs. Consolidation”. There are benefits and concessions to each and there is not clear answer.

OPTIONS

Each of the three options presented should be considered carefully. All three have very different cost implications but all three also provide radically different outcome quality.

Option 1 – Do Nothing. This is not recommended because the current situation is not sustainable

Option 2 – Additions and Renovations over 5+ years. This is not recommended due to the high cost, difficulty in performing the work and low-quality return.

Option 3 – Additions and Renovations in One Year. This is worth considering in that it allows for a more efficient delivery of construction than Option 2 and is much less expensive due to efficiency of scale and lack of inflation. It however does not solve all the issues and has the greatest negative impact on education during construction.

Option 4 – New South Elementary School, Additions and Renovations Elsewhere. This solves the problem for the major parts of the community. It is relatively cost effective. It does not solve the problem at Cutler which is the school with the most difficult challenge in renovations.

Option 5 – New South Elementary School, Additions and Renovations at Mt Caesar to create a North Elementary School. This solves the problem for most of the community. It is relatively cost effective.

Option 6 – Consolidate onto One Site. This is not recommended for two reasons: The size and the loss of community schools. Consolidation would reduce operating costs but would put a transportation burden on many families in the district.

Option 7 – Consolidate Across Town Borders. This would create a North and South and possibly a third Elementary School that are not restricted to town lines. This could allow for locations that are dictated by demographics, not political boundaries.

End Report

Monadnock Regional School District
 Distric Wide Elementary Schools

Student Historic Enrollments

	Number Actual		Number Estimate										5 year	3 year Wtd
	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021		
Births	106	129	129	100	124	98	109	104	106	106	106	106	107	105
PK	51	60	70	60	74	101	94	83	95				93	91
K	134	137	114	138	122	142	136	126	134				132	132
1	124	119	130	112	130	128	128	128	131				129	130
2	133	111	138	118	121	130	134	133	121				128	127
3	130	134	127	127	113	118	134	129	133				125	132
4	139	144	147	110	120	100	109	124	123				115	121
5	146	139	138	139	104	112	109	113	126				113	119
6	151	143	138	123	139	108	107	106	117				115	112
Tot. Elem	1008	987	1002	927	923	939	951	942	980				118.856	120.313

Cohort Survival Ratios

		2011	2012	2013	2014	2015	2016	2017	2018	5 year	3 year Wtd	Simple	
		PK				0.80811	0.78205	0.72806	0.83				0.70813
K		2.68627	1.9	1.97143	2.03333	1.91892	1.34653	1.34043	1.61446		1.650734	1.47846	1.33
1		0.88806	0.94891	0.98246	0.94203	1.04918	0.90141	0.94118	1.03968		0.974695	0.983802	1
2		0.89516	1.15966	0.90769	1.08036	1	1.04688	1.03906	0.94531		1.022321	0.99349	1
3		1.00752	1.14414	0.92029	0.95763	0.97521	1.03077	0.96269	1		0.985258	0.99269	1
4		1.10769	1.09701	0.86614	0.94488	0.88496	0.92373	0.92537	0.95349		0.926486	0.939157	1
5		1	0.95833	0.94558	0.94545	0.93333	1.09	1.0367	1.01613		1.004323	1.035297	1
6		0.97945	0.99281	0.8913	1	1.03846	0.95536	0.97248	1.0354		1.000339	1.001084	1
Avg.		0.9796	1.0501	0.9189	0.9784	0.9802	0.9914	0.9796	0.9983		0.98557	0.99092	1

Monadnock Regional School District
 Distric Wide Elementary Schools

Enrollment Projections

	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
PK	95	75	83	79	81	81	81	81			
K	134	157	124	137	130	134	134	134	134	0	0
1	131	131	153	121	134	127	131	131	131	131	0
2	121	134	134	156	124	137	130	134	134	134	134
3	133	119	132	132	154	122	135	128	132	132	132
4	123	123	110	122	122	143	113	125	119	122	122
5	126	124	124	110	123	123	144	113	126	120	123
6	117	126	124	124	110	123	123	144	113	126	120
Tot. Elem	980	989	984	981	978	990	991	990	889	765	631

5 Year
Average Projection

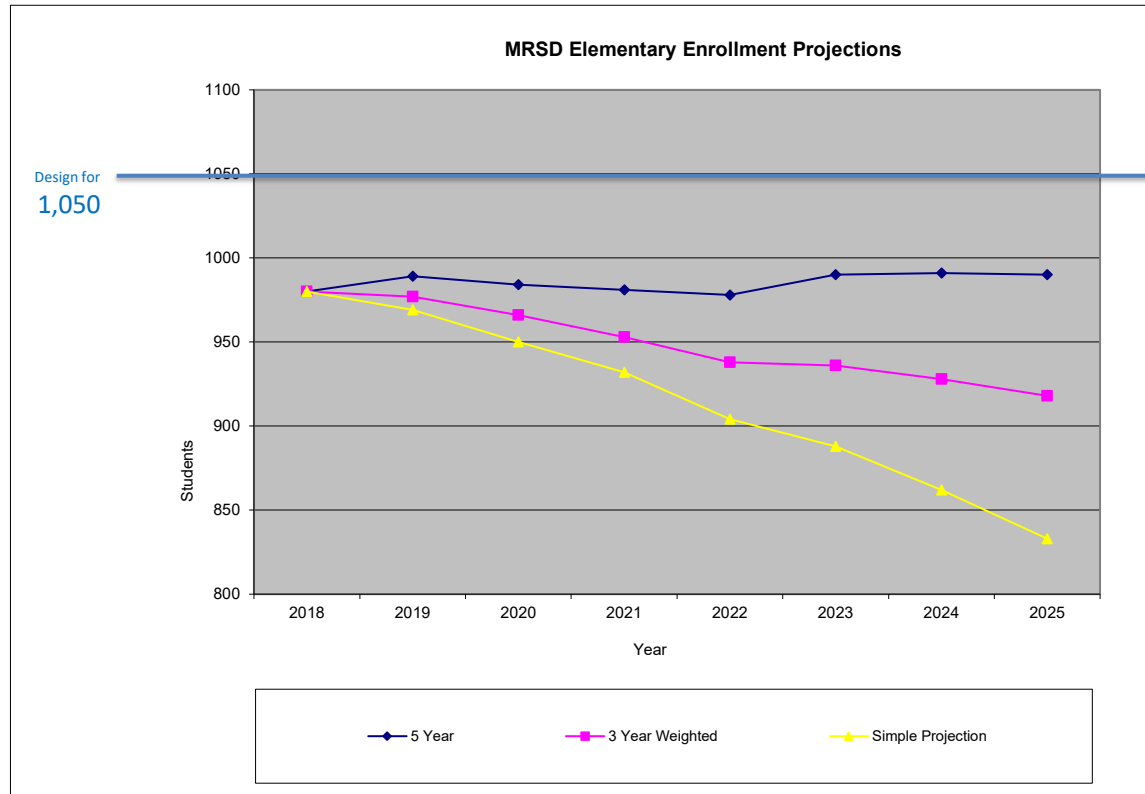
	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
PK	95	77	85	81	83	83	83	83			
K	134	140	114	126	120	123	123	123	123	0	0
1	131	132	138	112	124	118	121	121	121	121	0
2	121	130	131	137	111	123	117	120	120	120	120
3	133	120	129	130	136	110	122	116	119	119	119
4	123	125	113	121	122	128	103	115	109	112	112
5	126	127	129	117	125	126	133	107	119	113	116
6	117	126	127	129	117	125	126	133	107	119	113
Tot. Elem	980	977	966	953	938	936	928	918	818	704	580

3 Year Weighted
Average Projection

	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
PK	95	74	82	78	79	79	79	79			
K	134	127	99	109	104	105	105	105	105	0	0
1	131	134	127	99	109	104	105	105	105	105	0
2	121	131	134	127	99	109	104	105	105	105	105
3	133	121	131	134	127	99	109	104	105	105	105
4	123	133	121	131	134	127	99	109	104	105	105
5	126	123	133	121	131	134	127	99	109	104	105
6	117	126	123	133	121	131	134	127	99	109	104
Tot. Elem	980	969	950	932	904	888	862	833	732	633	524

Simple Projection

GRAPH A



Cutler Elementary School



View of main entrance



View of historic main entrance now exit only
View is from driveway entrance. Note the
current front entrance in alley to the left.



View of front lobby looking upstairs to principal's office. The lobby is open to the corridors of later wings and not fire rated nor secure.



Entrance to a special needs classroom that is not handicap accessible.



View of Library.

Note the column in the center of the room and the emergency exit to the outside towards the left.



View of corridor leading to original front entrance.

Note the steps in the foreground making this part of the building not handicap accessible. Also note the stairs on the right to the basement.



View of front lobby looking upstairs to principal's office. The lobby is open to the corridors of later wings and not fire rated nor secure.



View of corridor into portable classrooms and the exit.



View of s typical classroom.



View of gymnasium.



View of non-public entrance between portable classrooms.



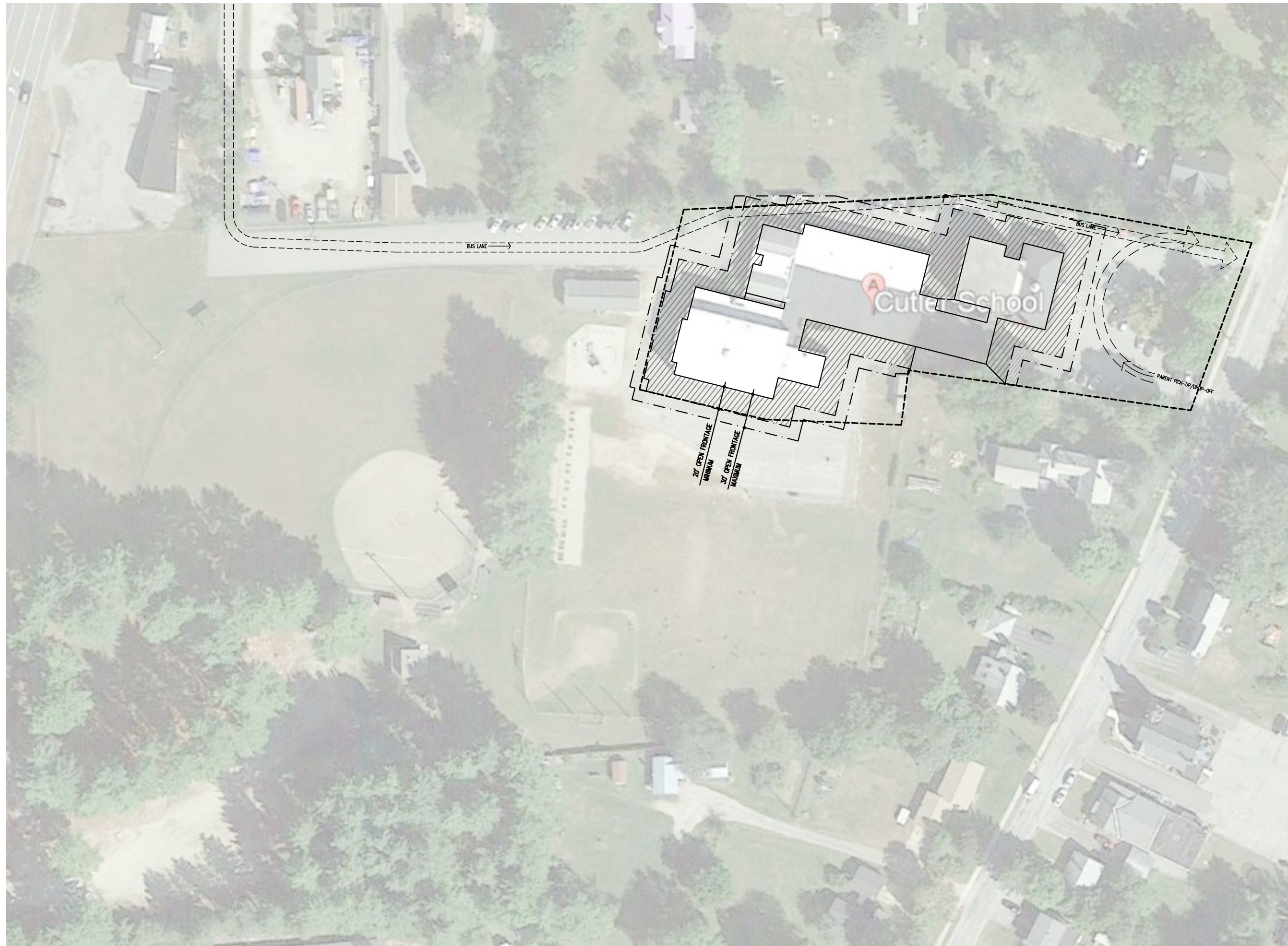
View of narrow alley that busses must pass through.



Exterior with mold from past moisture problems.



View of the rear of the 3-story structure.
Note the fire escape that does not meet code.
Note also the courtyard between the building wings that
extends to the front lobby.



REVISIONS

KEY PLAN

NOTES

CONSULTANTS



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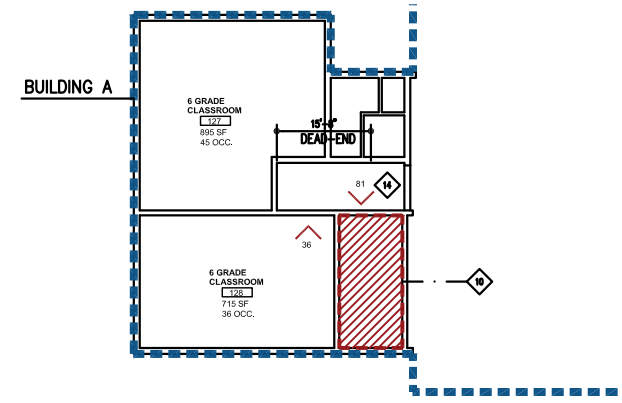
MONADNOCK REGIONAL SCHOOL DISTRICT
ELEMENTARY SCHOOLS ASSESSMENT STUDY

CUTLER ELEMENTARY SCHOOL
EXISTING SITE PLAN

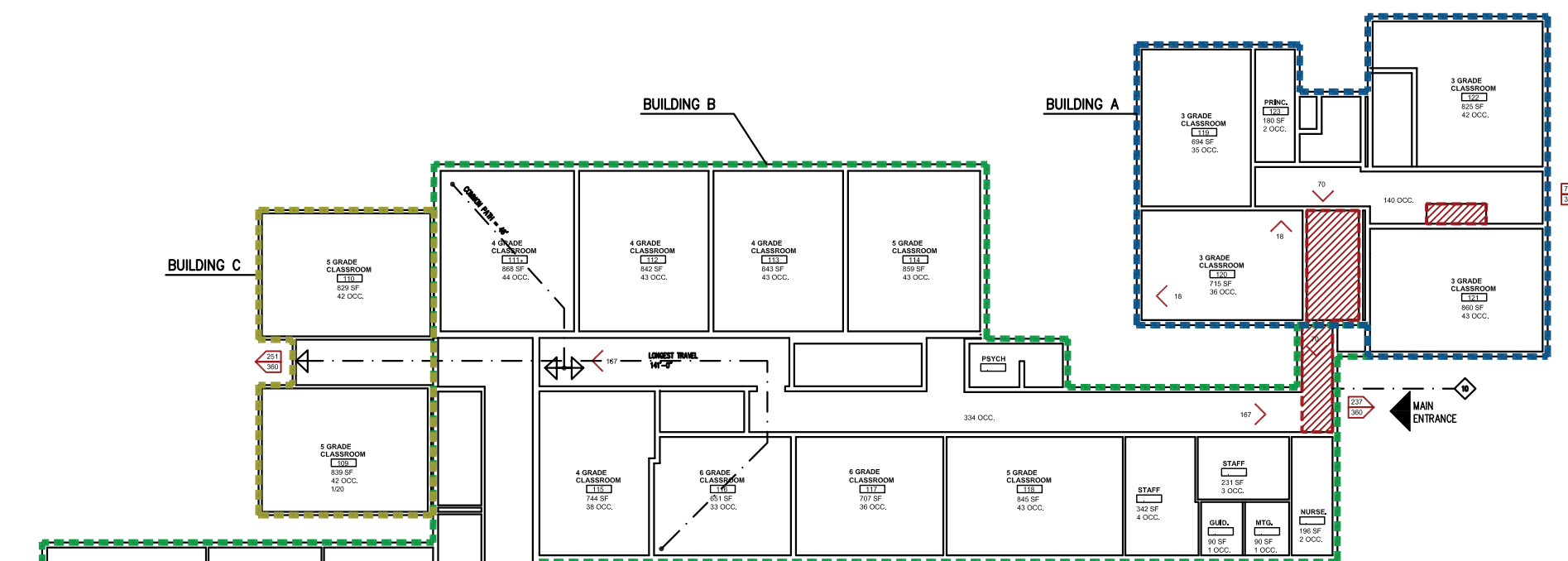
DATE : OCTOBER 31, 2019
SCALE : AS NOTED

SITE PLAN
1" = 60'-0"

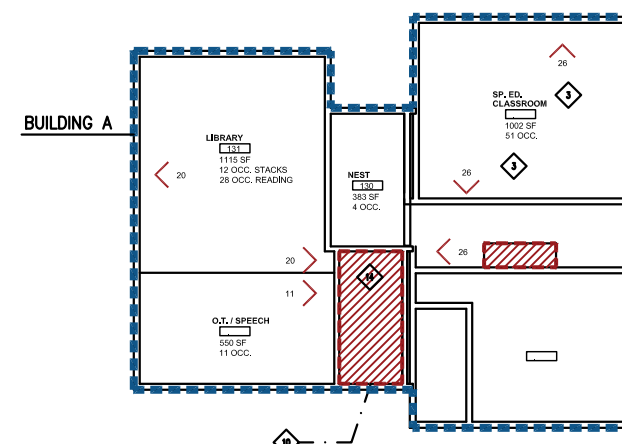
EX1



SECOND FLOOR PLAN



MAIN FLOOR PLAN



BASEMENT FLOOR PLAN

CODE NOTES	
1	PRESCHOOL THRU 1ST GRADE RESTRICTED TO LED
2	MINIMUM CORRIDOR WIDTH OF 6'-0" REQUIRED
3	TWO SEPARATE EXITS REQUIRED
4	DEAD-END CORRIDOR NOT TO EXCEED 50'-0"
5	COMMON PATH NOT TO EXCEED 100'-0"
6	ROOMS LARGER THAN 1000 SF REQUIRE 2 EXITS
7	DOORS CANNOT INTERFERE WITH CORRIDOR TRAVEL
8	TRAVEL DISTANCE TO EXIT CANNOT EXCEED 200'-0"
9	CORRIDORS ARE REQUIRED TO BE SMOKE RESISTANT
10	EXITS ARE REQUIRED TO BE FIRE RATED
11	ROOMS ARE REQUIRED TO BE FIRE RATED
12	MULTIPLE EXITS ARE REQUIRED TO BE REMOTE
13	OCCUPANT LOAD CANNOT EXCEED EGRESS WIDTH
14	ADA REQUIRES ACCESSIBLE ROUTE
15	ADA REQUIRES ACCESSIBLE FIXTURES

REVISIONS

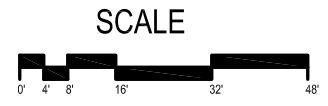
KEY PLAN

NOTES

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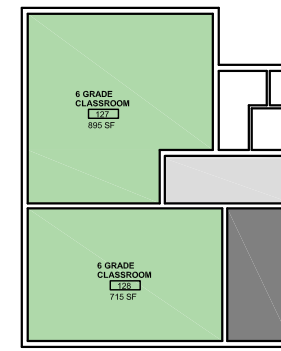


LEGEND	
	OCCUPANT LOAD AND EGRESS DIRECTION
	EXIT WITH OCCUPANT LOAD (ABOVE) CAPACITY (BELOW)
	REQUIRED FIRE RATED AREA
	LONGEST TRAVEL DISTANCE TO EXIT
	LONGEST COMMON PATH OF TRAVEL TO 2 MEANS OF EGRESS
	ASSEMBLY DIAGONAL DISTANCE
	ASSEMBLY EXIT REMOTENESS

MONADNOCK REGIONAL SCHOOL DISTRICT
ELEMENTARY SCHOOLS ASSESSMENT STUDY
CUTLER ELEMENTARY SCHOOL
EXISTING CONDITIONS PLANS

DATE : OCTOBER, 31, 2019
SCALE : AS NOTED

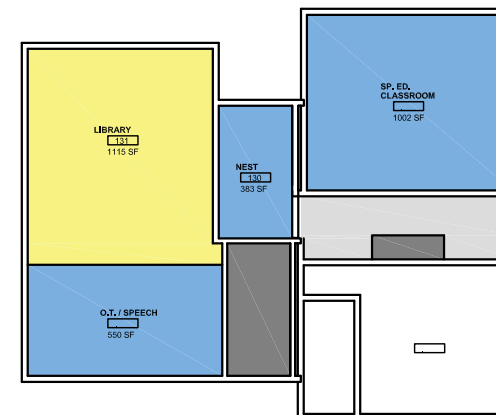
EX2



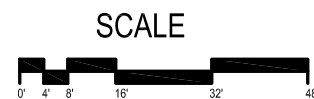
2 SECOND FLOOR PLAN



1 MAIN FLOOR PLAN



3 BASEMENT FLOOR PLAN



REVISIONS

KEY PLAN

NOTES

CONSULTANTS



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MONADNOCK REGIONAL SCHOOL DISTRICT
ELEMENTARY SCHOOLS ASSESSMENT STUDY
CUTLER ELEMENTARY SCHOOL
EXISTING CONDITIONS PLANS

DATE : OCTOBER, 31, 2019
SCALE : AS NOTED

EX3

BASIC INFORMATION

Location: 31 S. Winchester St. Swanzy, NH 03446	AREA	Building A	Building B	Building C	Total
	1st Floor	4982			4982
	2nd Floor	4982	20090	2101	27173
	3rd Floor	2498			2498
	Total	12462	20090	2101	34653
	Stories	3	1	1	
	Height	35	25	15	
	Footprint	9964	40180	4202	
	Perimeter	321.5	925	207	
	Const. Class	5b	3b	5b	
	Building Type	SM	S1	S1	
	Frontage min. 20'	268.5	624	103	
	Frontage min. 30'	268.5	584	103	
	Weighted Width	30.00	29.36	30.00	

APPLICABLE CODES

NEW HAMPSHIRE STATE BUILDING CODE

- 2015 EDITION INTERNATIONAL BUILDING CODE (IBC)
- 2015 EDITION INTERNATIONAL ENERGY CONSERVATION CODE (IECC)
- 2015 EDITION INTERNATIONAL EXISTING BUILDING CODE (IEBC)
- 2015 EDITION INTERNATIONAL MECHANICAL CODE (IMC)
- 2015 EDITION INTERNATIONAL PLUMBING CODE (IPC)
- 2017 EDITION NATIONAL ELECTRICAL CODE (NEC)

NEW HAMPSHIRE SAF-C 6000 BUILDING SAFETY CODE

- 2015 EDITION NFPA 1 UNIFORM FIRE CODE
- 2015 EDITION NFPA 101 LIFE SAFETY CODE

NEW HAMPSHIRE BARRIER FREE DESIGN CODE

- 2010 EDITION ADA STANDARDS FOR ACCESSIBLE DESIGN

NH DEPT OF EDUCATION STANDARDS

Approval of plan set by the State Fire Marshal required. Designs to meet the following codes:

State of NH Fire Code

2015 NFPA 101 - Life Safety Code

NH Code for Barrier Free Design and 2010 ADAAG when applicable

ANSI S12.60 Acoustical Performance Criteria, Design Requirements and Guidelines for Schools

Grade Level	Elementary	(Elementary, Middle, High)
Design Capacity:	275	students
Core Capacity:	320	students

Max. Building Size:
Max. Construction:

Minimum Size Standards

	Minimum Value	Preferred Total
Classrooms	36 s.f. per student	900 s.f.
Kindergartens	50 s.f. per student	1000 s.f.
Library	40 s.f. per student	1800 s.f.
Phys. Ed.	110 s.f. per student	700 s.f.
Office	60 s.f. per person	1200 s.f.
Nurse	1 cot per 200 stud.	300 s.f.

BUILDING DATA

Use and Occupancy Classification

		Building A	Building B	Building C	Total
Primary Use	Educational	7754	7189	1668	16611
Accessory Use	Assembly		5157		5157
	Business	180	1757		1937
	Storage		540		540
Total		4528	5447	433	10408
Total		12462	20090	2101	34653

Mixed Use	No	
Construction Type	V	
Sprinklers	Yes	NFPA 13 30.3.5.2
Fire Alarm System	Yes	30.3.4.1.1

Refer to Code Plan for Use Area Locations.

OCCUPANT LOAD

Classification		7.3.1.2	Building A	Building B	Building C	Total
Classrooms	20sf/person	303	367	84	754	
Library (Reading)	50sf/person net	28			28	
Library (Stacks)	100sf/person	12			12	
Assembly	15sf/person net		737		737	
Storage & Mech.	300sf/ person				0	
Kitchen	200sf/ person		6		6	
Locker room	50sf/person				0	
Business	100sf/person	2	11		13	
Total		345	1121	84	1550	

Refer to Code Plan for occupancy load per room.

MEANS OF EGRESS

Location of PK, K and 1st Grade	LED	New Educational	Exist Educational	Provided	
Corridor Width	6'-0"	14.2.1.2	15.2.1.2	COMPLIANT	
Number of Exits	2	14.2.3.2	15.2.3.2	COMPLIANT	
Rooms Over 1000 sf	2	14.2.4	15.2.4	NON-COMPLIANT	Building A
Assembly over 500	2	14.2.5.4	15.2.5.4	COMPLIANT	
Dead End Corridor	3	7.4.1.2	7.4.1.2	COMPLIANT	
Common Path of Travel	50'	14.2.5.2	15.2.5.2	COMPLIANT	
Travel Distance to Exit	100'	14.2.5.3.2	15.2.5.3.2	COMPLIANT	
Windows for Rescue	200'	14.2.6.2	15.2.6.2	COMPLIANT	
	No	14.2.11.1.2(2)	15.2.11.1.2(2)	SPRINK. EXCEPT.	

Refer to Code Plan for Egress, Exit Access, Maximum Travel , Maximum Common Path and Maximum Dead End Corridor.

PROTECTION

	Hours		Hours	
Exit Stairs	1	Hazardous Rooms		
Shafts	1	Boiler Room	SPRINKLER	15.3.2.1
Horizontal Assemblies	1	Storage Room	SPRINKLER	15.3.2.1
Exit Access Corridors	S	Janitor Closet	SPRINKLER	15.3.2.1
Smoke Compartments	N/A			

See Code Plan for locations of rated partitions.

INTERIOR FINISHES

Allowable Finishes	Class
Exits and Exit Passageways	A
Exit Access Corridors	B
Other Areas	C

Table B

Cutler Elementary School

IBC - Code Review

BUILDING DATA

Use and Occupancy Classification					
Building A	Primary Use	E	Number of Stories	3	
Fire Area #1	Accessory Use	A	Height	35 LF	
	Accessory Use	B	1st Floor	4982 SF	
	Mixed Use	No	2nd Floor	4982 SF	
	Construction Type	5b	3rd Floor	2498	
	Sprinklers	Yes	Footprint	4982 LF	
	Building Type	SM	Perimeter	321.5 LF	
			Frontage	268.5 LF	
			Weighted Width	30.00 LF	

This Fire Area **does not** Meet Code for Height This Fire Area **is** Within Allowable Area

Building B					
Fire Area #2	Primary Use	A-3	Number of Stories	1	
	Accessory Use	E	Height	25 LF	
	Mixed Use	No	1st Floor	0 SF	
	Construction Type	3b	2nd Floor	20090	
	Sprinklers	Yes	3rd Floor	0	
	Building Type	S1	Footprint	20090 LF	
			Perimeter	925 LF	
			Frontage	624 LF	
			Weighted Width	29.36 LF	

This Fire Area **does** Meet Code for Height This Fire Area **is** Within Allowable Area

Building C					
Fire Area #3	Primary Use	E	Number of Stories	1	
	Accessory Use		Area Height	15 LF	
	Mixed Use	No	1st Floor	0 SF	
	Construction Type	5b	2nd Floor	2101	
	Sprinklers	Yes	3rd Floor	0	
	Building Type	S1	Footprint	2101 LF	
			Perimeter	207 LF	
			Frontage	103 LF	
			Weighted Width	30.00 LF	

This Fire Area **does** Meet Code for Height This Fire Area **is** Within Allowable Area

	Fire Area #1	Fire Area #2	Fire Area #3	
Separated Uses	0	0	0	
Fire Alarm System	Yes	Yes	Yes	
Existing Building Alteration Level				1, 2, 3

CONSTRUCTION CLASSIFICATION

Table 601		Fire Area #1	Fire Area #2	Fire Area #3
		5b	3b	5b
Element		Rating	Rating	Rating
Primary Structural Frame		0	0	0
Bearing Walls	Exterior	0	2	0
	Interior	0	0	0
Non Bearing	Exterior	0	2	0
	Interior	0	0	0
Floors		0	0	0
Roofs		0	0	0

See Code Plan for locations of rated partitions.

PROTECTION

	Hours		Incidental Rooms	Hours
Firewalls	2	Table 706.4	Table 508.2.5	
Fire Barriers	1	Table 707.3.9	Boiler Room	1
Shafts	1	708.4	Sprinkler Room	1
Fire Partitions	1	709.1		
Exit Stairs	1	708		
Horiz. Assemblies	1	712		
Exit Access	Smoke	1018.1		

See Code Plan for locations of rated partitions.

INTERIOR FINISHES

Allowable Finishes	Table 803.9	Fire Area #1	Fire Area #2	Fire Area #3
Exits and Exit Passageways		B	B	B
Exit Access Corridors		C	C	C
Other Areas		C	C	C

OCCUPANT LOAD

Refer to Code Floor Plan for occupancy load per room.

Classification		1004.1.1	Building A	Building B	Building C	Total
Educational						794
Classrooms	20sf/person gross		303	367	84	
Library (Reading)	50sf/person net		28			
Library (Stacks)	100sf/person gross		12			
Assembly	15sf/person net			737		737
Business						19
Kitchen	200sf/ person gross			6		
Offices	100sf/person gross		2	11		
TOTAL			345	1121	84	1550

Refer to Code Plan for Egress, Exit Access, Maximum Travel , Maximum Common Path and Maximum Dead End Corridor.

MEANS OF EGRESS

		Required		Provided/Worst Case
Number of Exits	Under 49 occ.	1	1006.2.1	1
	Over 49 under 500	2	1006.2.1	2
	Over 500 under 1000	3	1006.2.1.1	3
Common Path of Travel		75	Table 1006.2.1	46
Exit Access Travel Distance		250	Table 1017.2	141
Dead End Corridor		50	1020.4(2)	16

PLUMBING REQUIREMENTS

		2902.1				
Classification		Water Closets	Lavatories	Showers	Drinking Fountains	Service Sink
Primary Use	E	16	16	-	8	1
Accessory Use	A				2	1
	Men	3	2	-		
	Women	6	2	-		
	B	1	1	-	1	1
		Provided				
Classification		Water Closets	Lavatories	Showers	Drinking Fountains	Service Sink
Primary Use	E	17	10	1	3	1
Accessory Use	A				0	1
	Men	2	1	-		
	Women	2	1	-		
	B	4	4	-	0	1
		COMPLIANT (if shared)	NON-COMPLIANT	COMPLIANT	NON-COMPLIANT	COMPLIANT

Uses are not subject to simultaneous occupancy so therefore fixtures can be shared between uses. This does require that toilet facilities in other parts of the building from the gymnasium be open when the gym is in use.

ENERGY CODE

Using Prescriptive Method for compliance

		Required	Provided	
Roof	(Attic and Other)	R-30ci	COMPLIANT	Only in 1996 addition. NON-COMPLIANT elsewhere
Walls	(Wood Framed)	R-11.4ci	COMPLIANT	Only in 1996 addition. NON-COMPLIANT elsewhere
Below Grade		R-7.5ci	COMPLIANT	Only in 1996 addition. NON-COMPLIANT elsewhere
Heated Slabs		R-15 for 24"	N/A	
Doors		U-0.70	NON-COMPLIANT	Unknown
Windows		U-0.35	NON-COMPLIANT	Unknown

Cutler Elementary School

Existing Building Needs

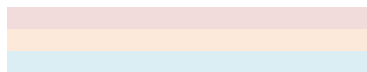
	Basement	1st Floor	2nd Floor	Total
Area	4,982	27,284	2,498	34,764
Perimeter				1,290

Cat	Item	Existing Descriptions	Corrective Measure	Cost / Priority			
				High	Medium	Low	Future
Site	1 Minimum Size Lot	Town municipal water and sewer.					
	2 Water and Septic	The bus and car separation is very awkward.	Reconfigure drive to create a safe bus loop.	\$ 100,000			
	3 Bus/Car Separation	Driveway too close to building creating a hazard.	Install speed bumps or restripe to shift the traffic pattern.	\$ 1,500			
	4 Parking/Drives						
	5 Playground/Playfields						
	6 Site Features	Stair at northwest corner in disrepair.	Replace stairs to be in compliance with current codes.	\$ 12,000			
Envelope	7 Grading/Drainage	No significant problems.					
	8 Oil, Propane Tank Age/Condition	Current fuel source is oil.	Change oil tank to propane.		\$ 40,000		
	9 Roof Condition	Evidence of some minor leaking.	Some work has been done.	\$ 50,000			
	10 Wall Condition (insulation and moisture protection)	Walls have minimal insulation. The '90's wing is showing signs of moisture issues with mold on the split-faced block.	Clean mold and seal block.		\$ 10,000		
	11 Door Condition (energy efficiency and operation)	There is a gap at stairway exit from Literary Room. The gym double doors are energy inefficient and corroded.	Replace literary room door. Replace gym door.	\$ 5,000	\$ 5,000		
	12 Window Condition (energy efficiency and operation)	Sealant around 1950s addition are failing. Paint around glass block is in poor condition. Older windows are past their useful life and are not energy efficient.	Seal around 1950s addition windows. Paint wood trim. Replace windows in 1950s and 1970's sections.	\$ 19,000	\$ 300,000		
	13 Foundation Condition (insulation and moisture protection)						
Life Safety	14 K-2 location based on LED						
	15 Panic devices						
	16 Stair Details (Rise/Run, Railings)	Handicap stair lift interferes with stair egress.					
	17 Areas of Refuge						
	18 Capacity of Means of Egress	Gymnasium doors do not meet code for width.	Install additional door leaf.	\$ 5,000			
	19 Corridor Width						
	20 Number of Exits	The 3-story section does not provide two legitimate means of egress from every floor.	Rearrange to create two remote means of egress, or cease using the top floor.	????			
	21 Dead-end Corridors						
	22 Exits through Intervening Rooms						
	23 Door Arrangement						
Building Code	24 Travel Distance						
	25 Means of Escape						
Structural	26 Protection of Vertical Openings	Existing stair has breaches in the fire rating.	Remove obstructions, install new fire rated doors and seal unprotected openings.	\$ 10,000			
	27 Protection of Hazards						
	28 Protection of Corridors	Some doors to classrooms do not resist the passage of smoke.	Replace damaged classroom doors with smoke doors.	\$ 4,000			
	29 Smoke Compartments						
	30 Fire Alarm, Emergency lights and Exit lighting	Fire alarm system recently replaced.					
	31 Furnishings, Decorations and Personal Effects in the Corridor						
	32 Height and Area Limitations						
	33 Construction Classification						
	34 Fire Rated Construction						
	35 Sprinklers	The building has an automatic sprinkler system.					
Accessibility	36 Fire Protection						
	37 Snow Load Capacity						
	38 Wall Condition (seismic capacity, cracks or deflection)						
	39 Floor Load Capacity						
	40 Foundation Condition (cracks or rot)						
	41 Parking						
	42 Building Access						
	43 Accessible Route	The second floor of the 1950s addition is not accessible.	Extend the stair lift to the second floor.		\$ 25,000		
	44 Clearances						
	45 Door Hardware						
Indoor Environmental Quality	46 Stair Details						
	47 Toilet Facilities	Not all toilet rooms are accessible.	Upgrade toilet rooms to make all comply.		\$ 75,000		
	48 Signage						
	49 Elevator	???	???				
	50 Ventilation	Most classrooms have older unit ventilators. The system is archaic and has no cooling. Control system non-extant.	Replace ventilation system with all new. install digital control system.	\$ 371,000	\$ 340,000		
	51 Thermal Control				\$ 150,000		
	52 Moisture / Mold						
	53 Lighting Quality						
	54 Acoustics						
	55 Sanitation						
Build. Services	56 Boiler Condition and Distribution	Chimney showing signs of creosote build-up. Boilers are reaching their expected life.	Clean Chimney. Replace oil boilers and tanks with new gas fire boilers and propane tanks.	\$ 1,500	\$ 175,000		
	57 Water Supply						
	58 Plumbing / Fixture Count	Plumbing fixtures are archaic.	Replace with new water-efficient fixtures.		\$ 44,000		
	59 Kitchen Equipment						
	60 Main Electrical Service						
	61 Generator	No generator.					
	62 Power Distribution	Outlets are aging and quantity low for technology. Lighting is archaic, energy inefficient and in poor condition.	Upgrade outlets. Replace lights with LED fixtures.		\$ 34,000		\$ 150,000
	63 Lighting Efficiency	Limited site lighting.	Add LED site lights for safety and security.				\$ 20,000
	64 Site lighting						
	65 Roof Drains						
Interior	66 Phone, Intercom, Security	Existing system is relatively new but not integrated.					
	67 Ceilings	Most ceilings in reasonable condition. The ceilings of the original building are archaic and have some damage.	Replace ceilings in original building.	\$ 10,000	\$ 70,000		
	68 Walls						
	69 Floors	VCT in 1970's corridor in poor condition.	Replace VCT in 1970s corridor.				\$ 40,000
	70 Doors	Many doors are showing signs of wear.	Replace doors in original through 1970's wings.		\$ 20,000		
Security and Safety	71 Cabinetry						
	72 Fixed Equipment						
	73 Visual Display Boards	Some rooms have been updated to new standard of boards and technology.	Update remainder of classrooms to district standards.		\$ 18,000		
	74 Lock-down of public areas	The gymnasium can be locked down from remainder of school.					
	75 Secure Visitor Check-in	There is no locked vestibule for security.	Add a vestibule for security and energy efficiency.				\$ 100,000
Miscellaneous	76 Technology	School has cameras.					
	77 Physical Hazards						
	78 Hazardous Materials						
	79 Visibility	visual connection to driveways and parking is limited.					
	80						
81							
82							
83							
84							
85							

\$ 589,000	\$ 1,306,000	\$ 310,000	\$ -
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Total Renovations \$ 2,205,000

TTG Study Recommendations
 Changes to TTG Study
 Barker Architects Recommendations



	Value of Existing	Renovation Minimum	Renovation Maximum
State Funding Thresholds	\$ 178	\$ 6,187,992	\$ 1,546,998
Cost Per S.F.			\$ 3,712,795

Table D
 11/17/2019

Barker Architects, PLLC

Cutler Elementary School

Curriculum Worksheet

Design Capacity	275
Core Capacity (Theoretical Max.)	370
Periods Per Day	6
Number of grades (include K)	4

<u>Subject</u>	Avg.		Max.		Teaching Stations
	Students/ grade	Avg. Size	Students/ grade	Max Size	
3 Grade Classrooms	69	20	88	22	4.0
4 Grade Classrooms	69	20	88	22	4.0
5 Grade Classrooms	69	22	96	24	4.0
6 Grade Classrooms	69	22	96	24	4.0
					16.0
	% enrolled	Total	Max Size	Meetings / Week	Required Stations
Special Ed. /Specialists (2) Resource OT / PT Speech Reading	20%	74	6	10	5.0
Regular Ed Special Rooms					
Science					
Art	100%	370	25	1	1.0
Music	100%	370	25	1	0.0
Phys. Ed. (3)	100%	370	25	2	1.0

1 Kindergarten is full day.

Actual Special Ed and Specialists required spaces varies considerably from school to school.

2 Socialists include regular ed small group instruction. Above calculation is solely for computing purposes. Required spaces should be base on actual programs.

3 Gymnasium to be designed for 2 teachings stations simultaneously.

Table E

Barker Architects, PLLC

11/17/2019

Cutler Elementary School

Space Needs Worksheet

Design Capacity 275
Core Capacity 370

ELEMENT	DESIGN			EXISTING				COMMENT	
	#	SIZE	TOTAL	#	SIZE	TOTAL			
EDUCATIONAL SPACES	Classrooms	16	900	14400	16	796	12731	88%	There is a wide range of classroom sizes. Some are well below DOE recommendations. Music and Art rooms combined in some schools.
	Art	1	1000	1000	1	830	830	83%	
	Music	0	1000	0					
	Special Ed. /Specialists	5	360	1800	4	499	1997	111%	
CORE SPACES	Phys Ed			5600			5527	99%	The gym also serves as the cafeteria and assembly space.
	Food Service								
	Caf. / Multi-Purpose Rm								
	Kitchen			863			539	62%	
	Assembly			1000			0	0%	
	Library			1800			1115	62%	
	Stacks	1	1400						
	Computer	1	400						
	Offices			1480			1129	76%	
	Admin./Guid.		900						
	Faculty / Work		280						
	Nurse		300						
	Subtotal			27943			23868		
Misc. -Circ, Mech, Toilets, Janitor Storage		40%	11177		46%	10896		Due to functional obsolescence there is a high level of non-program space.	
Totals			39121			34764			
Sq. Ft. / Student (Design Cap.)			142			126			
Sq. Ft. / Student (Core Cap.)			106			94			

Table F

Barker Architects, PLLC

11/17/2019

Emerson Elementary School



View of main entrance.



View of main lobby.
Note the exposed heating pipes.
The entrance to the main office is to the right.



View of the library.
Note the columns.



Basement corridor that is too narrow for code.



An unprotected vent into the corridor.
Note the residential fans.
Corridors need to resist the passage of smoke.



A classroom doorway that is not handicap accessible due to lack of pull-side clearance.



View of unprotected stair to basement.



Archaic fin-tube heating element with foam duct-taped to it for protection.



Typical classroom.



View of Gymnasium.



20' OPEN FRONTAGE
MINIMUM
30' OPEN FRONTAGE
MAXIMUM

SITE PLAN

REVISIONS

KEY PLAN

NOTES

CONSULTANTS

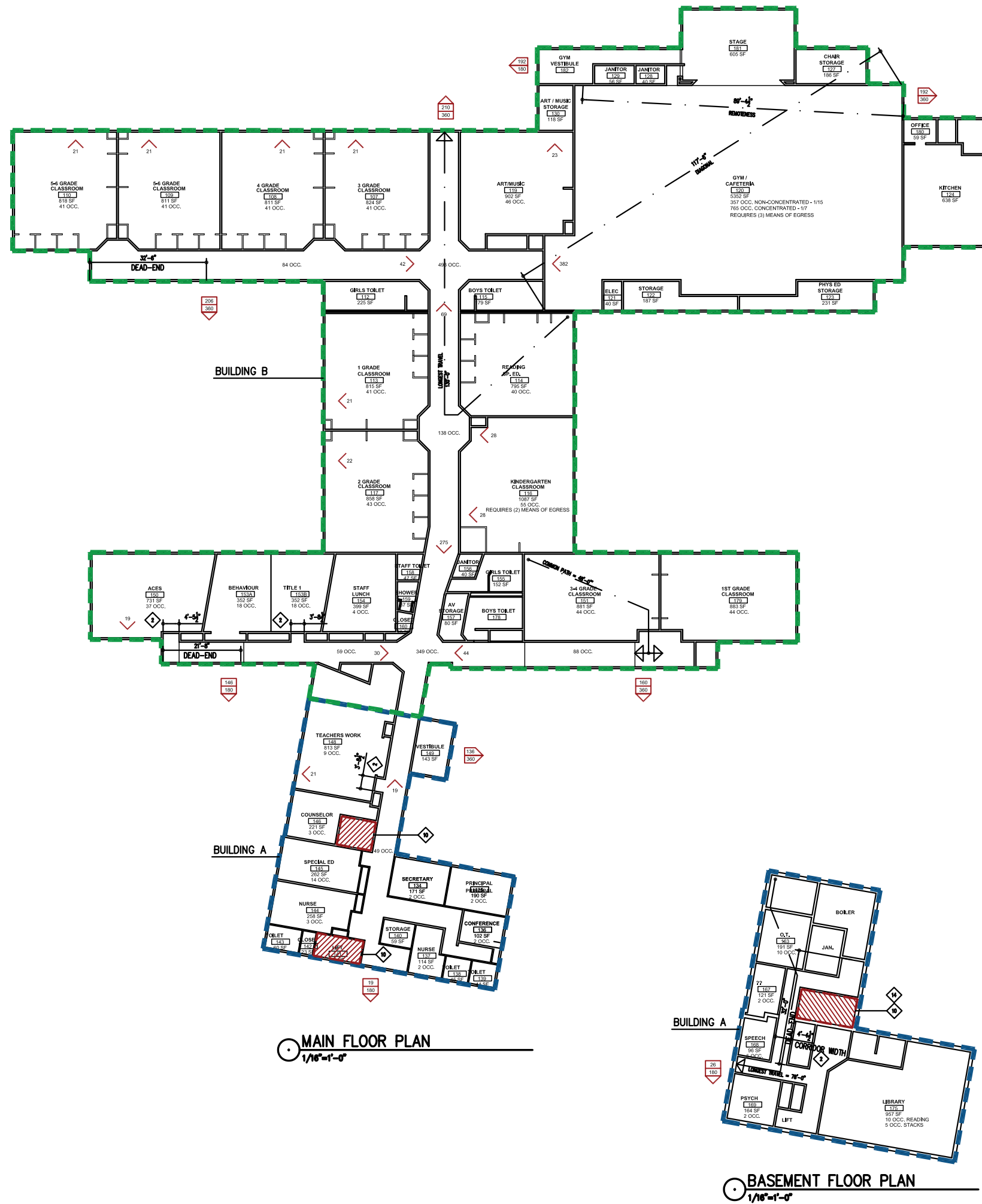


8 KEARSARGE STREET CONCORD, NH 03301
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MONADNOCK REGIONAL SCHOOL DISTRICT
ELEMENTARY SCHOOLS ASSESSMENT STUDY
EMERSON ELEMENTARY SCHOOL
EXISTING SITE PLAN

DATE : OCTOBER 31, 2019
SCALE : AS NOTED

EX1



MAIN FLOOR PLAN
1/16"=1'-0"

BASEMENT FLOOR PLAN
1/16"=1'-0"

CODE NOTES	
1	PRESCHOOL THRU 1ST GRADE RESTRICTED TO LED
2	MINIMUM CORRIDOR WIDTH OF 6'-0" REQUIRED
3	TWO SEPARATE EXITS REQUIRED
4	DEAD-END CORRIDOR NOT TO EXCEED 50'-0"
5	COMMON PATH NOT TO EXCEED 100'-0"
6	ROOMS LARGER THAN 1000 SF REQUIRE 2 EXITS
7	DOORS CANNOT INTERFERE WITH CORRIDOR TRAVEL
8	TRAVEL DISTANCE TO EXIT CANNOT EXCEED 200'-0"
9	CORRIDORS ARE REQUIRED TO BE SMOKE RESISTANT
10	EXITS ARE REQUIRED TO BE FIRE RATED
11	ROOMS ARE REQUIRED TO BE FIRE RATED
12	MULTIPLE EXITS ARE REQUIRED TO BE REMOTE
13	OCCUPANT LOAD CANNOT EXCEED EGRESS WIDTH
14	ADA REQUIRES ACCESSIBLE ROUTE
15	ADA REQUIRES ACCESSIBLE FIXTURES



LEGEND	
	OCCUPANT LOAD AND EGRESS DIRECTION
	EXIT WITH OCCUPANT LOAD (ABOVE) CAPACITY (BELOW)
	REQUIRED FIRE RATED AREA
	LONGEST TRAVEL DISTANCE TO EXIT
	LONGEST COMMON PATH OF TRAVEL TO 2 MEANS OF EGRESS
	ASSEMBLY DIAGONAL DISTANCE
	ASSEMBLY EXIT REMOTENESS

REVISIONS

KEY PLAN

NOTES

CONSULTANTS



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MONADNOCK REGIONAL SCHOOL DISTRICT
ELEMENTARY SCHOOLS ASSESSMENT STUDY
EMERSON ELEMENTARY SCHOOL
EXISTING CONDITIONS PLANS

DATE : OCTOBER 31, 2019
SCALE : AS NOTED

EX2



MAIN FLOOR PLAN
1/16"=1'-0"



BASEMENT FLOOR PLAN
1/16"=1'-0"

SCALE

LEGEND

- CORRIDORS
- STAIRS
- TOILETS
- CORE AREAS
- SPECIALS
- CLASSROOMS

REVISIONS

KEY PLAN

NOTES

CONSULTANTS



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MONADNOCK REGIONAL SCHOOL DISTRICT
ELEMENTARY SCHOOLS ASSESSMENT STUDY
EMERSON ELEMENTARY SCHOOL
EXISTING CONDITIONS PLANS

DATE : OCTOBER 31, 2019
SCALE : AS NOTED

EX3

BASIC INFORMATION

Location: 31 S. Winchester St. Swanzy, NH 03446	AREA	Building A	Building B	Building C	Total
	1st Floor	3314			3314
	2nd Floor	3494	26044		29538
	3rd Floor				0
	Total	6808	26044		32852
	Stories	2	1		
	Height	25	30		
	Footprint	3494	26044		
	Perimeter	292	1190		
	Const. Class	5b	5b		
	Building Type	SM	S1		
	Frontage min. 20'	260	1158		
	Frontage min. 30'	260	1158		
	Weighted Width	30	30		

APPLICABLE CODES

NEW HAMPSHIRE STATE BUILDING CODE

- 2015 EDITION INTERNATIONAL BUILDING CODE (IBC)
- 2015 EDITION INTERNATIONAL ENERGY CONSERVATION CODE (IECC)
- 2015 EDITION INTERNATIONAL EXISTING BUILDING CODE (IEBC)
- 2015 EDITION INTERNATIONAL MECHANICAL CODE (IMC)
- 2015 EDITION INTERNATIONAL PLUMBING CODE (IPC)
- 2017 EDITION NATIONAL ELECTRICAL CODE (NEC)

NEW HAMPSHIRE SAF-C 6000 BUILDING SAFETY CODE

- 2015 EDITION NFPA 1 UNIFORM FIRE CODE
- 2015 EDITION NFPA 101 LIFE SAFETY CODE

NEW HAMPSHIRE BARRIER FREE DESIGN CODE

- 2010 EDITION ADA STANDARDS FOR ACCESSIBLE DESIGN

NH DEPT OF EDUCATION STANDARDS

Approval of plan set by the State Fire Marshal required. Designs to meet the following codes:

State of NH Fire Code

2015 NFPA 101 - Life Safety Code

NH Code for Barrier Free Design and 2010 ADAAG when applicable

ANSI S12.60 Acoustical Performance Criteria, Design Requirements and Guidelines for Schools

Grade Level	Elementary	(Elementary, Middle, High)
Design Capacity:	200	students
Core Capacity:	250	students

Max. Building Size:
Max. Construction:

Minimum Size Standards

	Minimum Value	Preferred Total
Classrooms	36 s.f. per student	900 s.f.
Kindergartens	50 s.f. per student	1000 s.f.
Library	40 s.f. per student	1800 s.f.
Phys. Ed.	110 s.f. per student	700 s.f.
Office	60 s.f. per person	1200 s.f.
Nurse	1 cot per 200 stud.	300 s.f.

Table A

BUILDING DATA

Use and Occupancy Classification

		Building A	Building B	Total
Primary Use	Educational	11167	12636	23803
Accessory Use	Assembly	1115	5157	6272
	Business	180	1757	1937
	Storage		540	540
	Misc.			
Total		12462	20090	32552

Mixed Use	No	
Construction Type	V	
Sprinklers	Yes	NFPA 13 30.3.5.2
Fire Alarm System	Yes	30.3.4.1.1

Refer to Code Plan for Use Area Locations.

OCCUPANT LOAD

		Building A	Building B	Total
Classification	7.3.1.2			
Classrooms	20sf/person	70	550	620
Library (Reading)	50sf/person net	10		10
Library (Stacks)	100sf/person	5		5
Assembly	15sf/person net		765	765
Storage & Mech.	300sf/ person			0
Kitchen	200sf/ person		6	6
Locker room	50sf/person			0
Business	100sf/person	18	4	22
Total		103	1325	1428

Refer to Code Plan for occupancy load per room.

MEANS OF EGRESS

		New Educational	Exist Educational	Provided	
Location of PK, K and 1st Grade	LED	14.2.1.2	15.2.1.2	COMPLIANT	
Corridor Width	6'-0"	14.2.3.2	15.2.3.2	COMPLIANT	
Number of Exits	2	14.2.4	15.2.4	NON-COMPLIANT	Building A
Rooms Over 1000 sf	2	14.2.5.4	15.2.5.4	COMPLIANT	
Assembly over 500	3	7.4.1.2	7.4.1.2	COMPLIANT	
Dead End Corridor	50'	14.2.5.2	15.2.5.2	COMPLIANT	
Common Path of Travel	100'	14.2.5.3.2	15.2.5.3.2	COMPLIANT	
Travel Distance to Exit	200'	14.2.6.2	15.2.6.2	COMPLIANT	
Windows for Rescue	No	14.2.11.1.2(2)	15.2.11.1.2(2)	SPRINK. EXCEPT.	

Refer to Code Plan for Egress, Exit Access, Maximum Travel , Maximum Common Path and Maximum Dead End Corridor.

PROTECTION

	Hours		Hours	
Exit Stairs	1	Hazardous Rooms		
Shafts	1	Boiler Room	SPRINKLER	15.3.2.1
Horizontal Assemblies	1	Storage Room	SPRINKLER	15.3.2.1
Exit Access Corridors	S	Janitor Closet	SPRINKLER	15.3.2.1
Smoke Compartments	N/A			
				14.3.6(2)
				14.3.7.2(2)

See Code Plan for locations of rated partitions.

INTERIOR FINISHES

Allowable Finishes	Class
Exits and Exit Passageways	A
Exit Access Corridors	B
Other Areas	C

Table B

Emerson Elementary School

IBC - Code Review

HEIGHT AND AREA LIMITATIONS

Use and Occupancy Classification					
Building A	Primary Use	E	Number of Stories	2	
Fire Area #1	Accessory Use	A	Height	24.00 LF	
	Accessory Use	B	1st Floor	3314 SF	
			2nd Floor	3494 SF	
	Mixed Use	No	3rd Floor	0	
	Construction Type	5b	Footprint	3494 LF	
	Sprinklers	Yes	Perimeter	1120 LF	
	Building Type	SM	Frontage	1090 LF	
			Weighted Width	30 LF	

This Fire Area Meet Code for Height

This Fire Area Within Allowable Area

Building B					
Fire Area #2	Primary Use	A-3	Number of Stories	1	
	Accessory Use	E	Height	30.00 LF	
		B	1st Floor	0 SF	
	Mixed Use	No	2nd Floor	26044	
	Construction Type	5b	3rd Floor	0	
	Sprinklers	Yes	Footprint	26044 LF	
	Building Type	S1	Perimeter	1190 LF	
			Frontage	1158 LF	
			Weighted Width	30 LF	

This Fire Area Meet Code for Height

This Fire Area Within Allowable Area

Building C					
Fire Area #3	Primary Use		Number of Stories	0	
	Accessory Use		Area Height	0 LF	
			1st Floor	0 SF	
	Mixed Use		2nd Floor	0	
	Construction Type		3rd Floor	0	
	Sprinklers		Footprint	0 LF	
	Building Type		Perimeter	0 LF	
			Frontage	0 LF	
			Weighted Width	0 LF	

This Fire Area Meet Code for Height

This Fire Area Within Allowable Area

	Fire Area #1	Fire Area #2	Fire Area #3
Separated Uses	0	0	0
Fire Alarm System	Yes	Yes	Yes
Existing Building Alteration Level			1, 2, 3

CONSTRUCTION CLASSIFICATION

Table 601	Fire Area #1	Fire Area #2	Fire Area #3
Element	5b Rating	5b Rating	0 Rating
Primary Structural Frame	0	0	0
Bearing Walls	Exterior	0	0
	Interior	0	0
Non Bearing	Exterior	0	0
	Interior	0	0
Floors	0	0	0
Roofs	0	0	0

See Code Plan for locations of rated partitions.

PROTECTION

	Hours	Table	Incidental Rooms	Hours
Firewalls	2	Table 706.4	Table 508.2.5	
Fire Barriers	1	Table 707.3.9	Boiler Room	1
Shafts	1	708.4	Sprinkler Room	1
Fire Partitions	1	709.1		
Exit Stairs	1	708		
Horiz. Assemblies	1	712		
Exit Access	Smoke	1018.1		

See Code Plan for locations of rated partitions.

INTERIOR FINISHES

Allowable Finishes Table 803.9	Fire Area #1	Fire Area #2	Fire Area #3
Exits and Exit Passageways	B	B	B
Exit Access Corridors	C	C	C
Other Areas	C	C	C

OCCUPANT LOAD

Refer to Code Floor Plan for occupancy load per room. 1004.1.1

Classification		Building A	Building B	Building C	Total
Educational					635
Classrooms	20sf/person gross	70	550		
Library (Reading)	50sf/person net	10			
Library (Stacks)	100sf/person gross	5			
Assembly	15sf/person net		765		765
Business					28
Kitchen	200sf/ person gross		6		
Offices	100sf/person gross	18	4		
TOTAL		103	1325		1428

Refer to Code Plan for Egress, Exit Access, Maximum Travel , Maximum Common Path and Maximum Dead End Corridor.

MEANS OF EGRESS

	Required		Provided/Worst Case
Number of Exits Under 49 occ.	1	1006.2.1	1
Over 49 under 500	2	1006.2.1	2
Over 500 under 100	3	1006.2.1.1	3
Common Path of Travel	75	Table 1006.2.1	46
Exit Access Travel Distance	250	Table 1017.2	141
Dead End Corridor	50	1020.4(2)	16

PLUMBING REQUIREMENTS

Primary Use	Classification	Required 2902.1				
		Water Closets	Lavatories	Showers	Drinking Fountains	Service Sink
Primary Use	E	13	13	-	7	1
Accessory Use	A				2	1
	Men	4	2	-		
	Women	6	2	-		
	B	2	1	-	1	1
		Provided				
Primary Use	Classification	Water Closets	Lavatories	Showers	Drinking Fountains	Service Sink
		10	5	1		1
Accessory Use	A					1
	Men	4	2	-		
	Women	4	3	-		
	B	4	4	-		
		COMPLIANT (if shared)	NON-COMPLIANT	COMPLIANT	NON-COMPLIANT	COMPLIANT

Uses are not subject to simultaneous occupancy so therefore fixtures can be shared between uses. This does require that toilet facilities in other parts of the building from the gymnasium be open when the gym is in use.

ENERGY CODE

Using Prescriptive Method for compliance

	Required	Provided
Roof (Attic and Other)	R-38	UNK
Walls (Wood Framed)	R-20	COMPLIANT
Below Grade	R-7.5ci	COMPLIANT
Heated Slabs	R-15 for 24"	N/A
Doors	U-0.70	UNK
Windows	U-0.35	UNK

Emerson Elementary School

Existing Building Needs

	1st Floor	2nd Floor	Total
Area	3,314	29,532	32,846
Perimeter	280	1,415	1,695

Cat	Item	Existing Descriptions	Corrective Measure	Cost / Priority			
				High	Medium	Low	Future
Site	1 Minimum Size Lot	26 acres with long-term lease.					
	2 Water and Septic	On-site water and sewer. New well. Septic system probably 20 +/- years old.	The septic system at some point will need to be replaced or at least serviced.				\$ 50,000
	3 Bus/Car Separation						
	4 Parking	Adequate parking.					
	5 Playground/Playfields						
	6 Site Features						
	7 Grading/Drainage	Drainage recently improved.					
	8 Oil, Propane Tank Age/Condition	New on-site underground propane					
	9 Roof Condition	Original school has a newer roof. The additions are in poor condition. The 1950 and 1999 wings need a new roof.	Replace 1950 and 1999 roofs with new architectural asphalt shingles. Some work completed in the last year.		\$ 100,000		
Envelope	10 Wall Condition (insulation and moisture protection)	Some mildew, cracks or missing pieces of vinyl. Exposed wood needs paint touch-up. Some ice-damming occurring. Split-Faced Block shows mold.	Investigate the source of the mold, repair and clean.	\$ 10,000			
	11 Door Condition (energy efficiency and operation)	Most doors in reasonably good condition. The weather seals need replacing. The pump room doors need paint.					
	12 Window Condition (energy efficiency and	All windows in are old or in poor condition.	Replace all windows.	\$ 125,000			
	13 Foundation Condition (insulation and moisture protection)						
Life Safety	14 K-2 location based on LED						
	15 Panic devices						
	16 Stair Details (Rise/Run, Railings)	Stair guardrails and handrails do not meet current code. Original front steps are too steep.	Upgrade guardrails and handrails. Reconfigure original front steps.	\$ 8,000		\$ 120,000	
	17 Areas of Refuge						
	18 Capacity of Means of Egress						
	19 Corridor Width	The lower level corridor is too narrow being less than 6'-0" wide.	Reconfigure lower level to meet code for corridor width and other issues.	\$ 20,000			
	20 Number of Exits						
	21 Dead-end Corridors						
	22 Exits through Intervening Rooms						
	23 Door Arrangement						
	24 Travel Distance						
25 Means of Escape							
26 Protection of Vertical Openings	The stairs and lift to lower level not rated.	Reconfigure and fire rate stairs and lift openings.	\$ 20,000				
27 Protection of Hazards							
28 Protection of Corridors							
29 Smoke Compartments							
30 Fire Alarm, Emergency lights and Exit lighting	New system installed recently.						
31 Furnishings, Decorations and Personal Effects in the Corridor							
Building Code	32 Height and Area Limitations						
	33 Construction Classification						
	34 Fire Rated Construction						
	35 Sprinklers	The building has an automatic sprinkler system.					
Structural	36 Fire Protection						
	37 Snow Load Capacity						
	38 Wall Condition (seismic capacity, cracks or deflection)						
	39 Floor Load Capacity						
Accessibility	40 Foundation Condition (cracks or rot)						
	41 Parking	Complies					
	42 Building Access	Complies					
	43 Accessible Route	Some corridor doors do not have proper clearances.	Reconfigure doorways for clearance.	\$ 10,000			
	44 Clearances						
	45 Door Hardware						
	46 Stair Details						
	47 Toilet Facilities	Not all comply.	Upgrade toilet rooms that are not fully handicap accessible.		\$ 75,000		
Indoor Environmental Quality	48 Signage						
	49 Elevator	There is a lift only to the lower level.					
	50 Ventilation	Existing system is older unit ventilators with some areas of ducted fan-coils.	Provide VRF heat pumps.		\$ 825,000		
	51 Thermal Control	Some rooms overheating.	Recommission system and provide a digital control system.	\$ 215,000			
	52 Moisture / Mold	High humidity experienced in the lower level.	Provide commercial dehumidification.	\$ 20,000			
	53 Lighting Quality	Old energy inefficient fluorescent lights.	Upgrade to new LED lights.	\$ 150,000			
	54 Acoustics						
Build. Services	55 Sanitation						
	56 Boiler Condition and Distribution	Boilers replaced recently.					
	57 Water Supply						
	58 Plumbing / Fixture Count						
	59 Kitchen Equipment						
	60 Main Electrical Service	Aging but in reasonably good condition.	Consider replacing at some point.				\$ 50,000
	61 Generator	No generator.					
	62 Power Distribution	Aging and should be upgraded. Outlets should be replaced, wiring checked and additional power for technology provided.				\$ 65,000	
	63 Lighting Efficiency						
	64 Site lighting	Site lighting is minimal.	Add LED sharp-cut-off site lights for security and safety.		\$ 20,000		
	65 Roof Drains						
Interior	66 Phone, Intercom, Security	System is aging and should be upgraded.	Install new integrated phone-intercom with VOIP.			\$ 30,000	
	67 Ceilings	Most ceilings are drywall. Some have fiberglass	Install new suspended ceilings.	\$ 40,000			
	68 Walls	Some walls show significant wear.	Repair as needed	\$ 25,000			
	69 Floors	Some floor tiles need to be replaced.		\$ 100,000			
	70 Doors						
	71 Cabinetry	Classrooms lack cabinetry.	Add cabinets to meet district standard.		\$ 56,000		
	72 Fixed Equipment						
	73 Visual Display Boards	The white boards and tack boards are adequate but do not up to date with current display technology.	Install new smart TV monitors to match district standard.		\$ 21,000		
Security and Safety	74 Lock-down of public areas	The gymnasium can only be locked down from the public through the use of gates. This is not Life Safety Code compliant.	Install security doors and upgrade toilet facilities.	\$ 20,000			
	75 Secure Visitor Check-in	The current vestibule is remote from the secretaries office.	Rearrange the front entrance to be adjacent to the main office with a secure window between.	\$ 100,000			
	76 Technology	School has cameras.					
	77 Physical Hazards						
	78 Hazardous Materials						
	79 Visibility						
Miscellaneous	80 Miscellaneous upgrades including access to exterior mechanical door.				\$ 6,000		
	81						
	82						
	83						
	84						
	85						

\$ 603,000	\$ 1,488,000	\$ 215,000	\$ 100,000
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Total Renovations \$ 2,406,000

TTG Study Recommendations	
Changes to TTG Study	
Barker Recommendations	

	Cost	Value of Existing	Renovation Minimum	Renovation Maximum
State Funding Thresholds Per/S.F.	\$ 178	\$ 5,846,588	\$ 1,461,647	\$ 3,507,953

Table D

Emerson Elementary School

Curriculum Worksheet

Design Capacity	200
Core Capacity (Theoretical Max.)	250
Periods Per Day	6
Number of grades (include K)	7

<u>Subject</u>	Avg.		Max.		Teaching Stations	
	Students/ grade	Avg. Size	Students/ grade	Max Size		
Pre-Kindergarten	9	16	18	18	1.0	
Kindergarten (1)	27	16	36	18	2.0	
General Classrooms						
1 Grade Classrooms	27	18	40	20	2.0	
2 Grade Classrooms	27	18	40	20	2.0	
3/4 Grade Classrooms (4)	55	20	66	22	3.0	
5/6 Grade Classrooms (4)	55	20	66	22	3.0	
General Classroom					Total	10.0
	% enrolled	Total	Max Size	Meetings / Week	Required Stations	
Special Ed. /Specialists (2)	20%	50	6	10	3.0	
ACES Title I OT / PT Speech Reading						
Regular Ed Special Rooms						
Science						
Art	100%	250	25	1	1.0	
Music	100%	250	25	1	0.0	
Phys. Ed.	100%	250	25	2	1.0	(3)

1 Kindergarten is full day.

Actual Special Ed and Specialists required spaces varies considerably from school to school.

2 Socialists include regular ed small group instruction. Above calculation is solely for computing purposes. Required spaces should be base on actual programs.

3 Gymnasium to be designed for 2 teachings stations simultaneously.

4 Multi-Age classrooms employed to create more efficient class sizes.

Table E

Barker Architects, PLLC

11/17/2019

Emerson Elementary School

Space Needs Worksheet

Design Capacity 200
Core Capacity 250

ELEMENT	DESIGN			EXISTING				COMMENT
	#	SIZE	TOTAL	#	SIZE	TOTAL		
EDUCATIONAL SPACES	Pre-Kindergarten	1	1000	1000				0%
	Kindergarten	2	1000	2000	2	1007	2014	101%
	Classrooms	10	900	9000	8	881	7049	78%
	Art	1	1000	1000	1	1020	1020	102%
	Music							
	Special Ed. /Specialists	3	360	1080	9	360	3240	300%
CORE SPACES	Phys Ed			5600			5583	100%
	Food Service							
	Caf. / Multi-Purpose Rm						0	#DIV/0!
	Kitchen			583			697	119%
	Assembly			1000			605	61%
	Library			1800			1228	68%
	Stacks	1	1400					
	Computer	1	400					
	Offices			1200			2047	171%
	Admin./Guid.		900			1675		
	Faculty / Work		0			258		
	Nurse		300			114		
	Subtotal			24263			23483	
Misc. -Circ, Mech, Toilets, Janitor Storage		40%	9705			9363		

Totals 33969 32846

Sq. Ft. / Student (Design Cap.) 170 164
Sq. Ft. / Student (Core Cap.) 136 131

Gilsum Elementary School



View of Community Center entrance



View of school entrance in the courtyard.



View of Gymnasium.



Typical cafeteria.



Exterior of kindergarten.
Note the steep grades making a second exit difficult.
Also, note the buried tanks.



View of extensive network of ramps used as an exit
discharge.
Note the lack of guardrails from the higher levels.



REVISIONS

KEY PLAN

NOTES

CONSULTANTS



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MONADNOCK REGIONAL SCHOOL DISTRICT
ELEMENTARY SCHOOLS ASSESSMENT STUDY

GILSUM STEAM ACADEMY
EXISTING SITE PLAN

DATE : OCTOBER 31, 2019
SCALE : AS NOTED



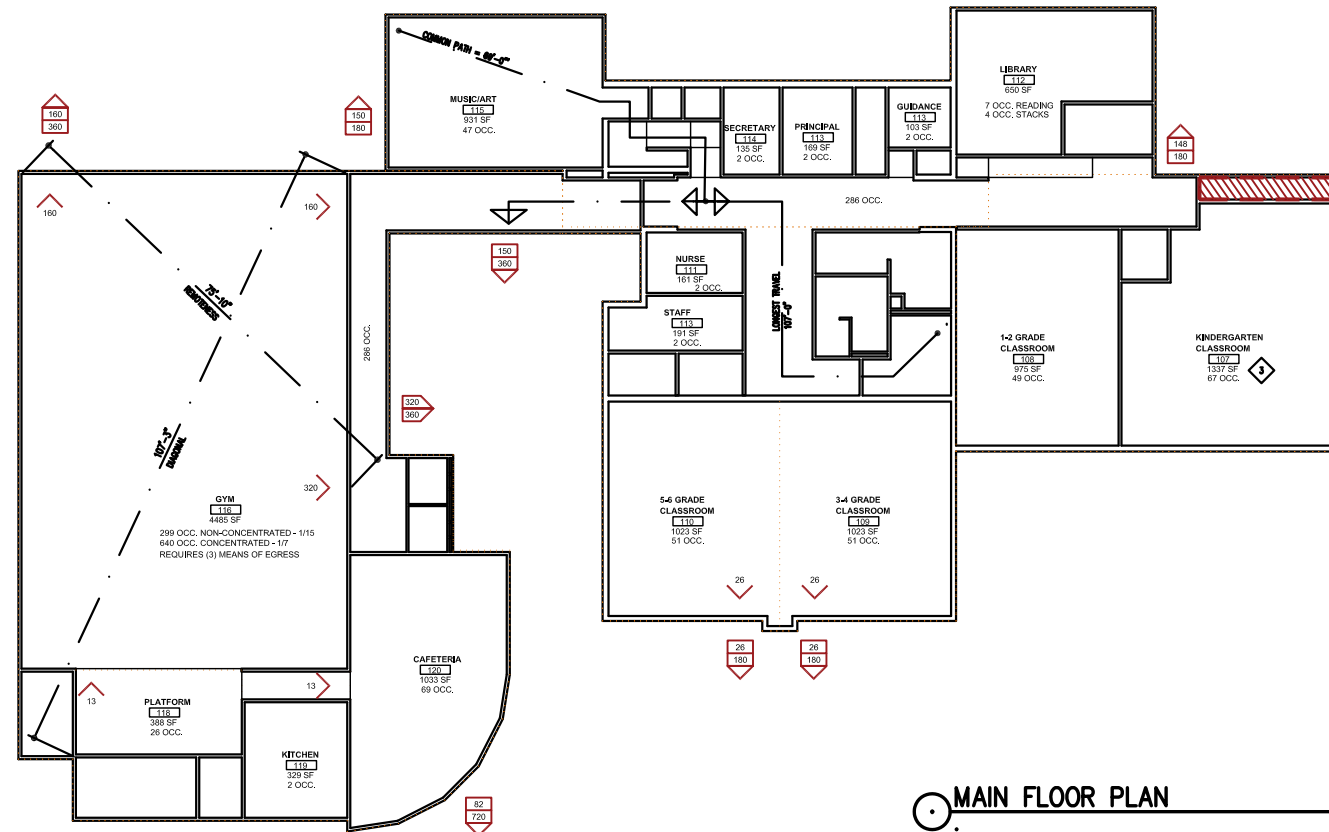
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P: (603)731-7796 WWW.BARKERARCHITECTS.COM

MONADNOCK REGIONAL SCHOOL DISTRICT
ELEMENTARY SCHOOLS ASSESSMENT STUDY
GILSUM STEAM ACADEMY
EXISTING CONDITIONS PLANS

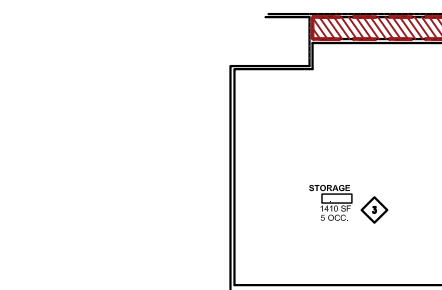
DATE : OCTOBER 31, 2019
SCALE : AS NOTED

EX2

CODE NOTES	
1	PRESCHOOL THRU 1ST GRADE RESTRICTED TO LED
2	MINIMUM CORRIDOR WIDTH OF 6'-0" REQUIRED
3	TWO SEPARATE EXITS REQUIRED
4	DEAD-END CORRIDOR NOT TO EXCEED 50'-0"
5	COMMON PATH NOT TO EXCEED 100'-0"
6	ROOMS LARGER THAN 1000 SF REQUIRE 2 EXITS
7	DOORS CANNOT INTERFERE WITH CORRIDOR TRAVEL
8	TRAVEL DISTANCE TO EXIT CANNOT EXCEED 200'-0"
9	CORRIDORS ARE REQUIRED TO BE SMOKE RESISTANT
10	EXITS ARE REQUIRED TO BE FIRE RATED
11	ROOMS ARE REQUIRED TO BE FIRE RATED
12	MULTIPLE EXITS ARE REQUIRED TO BE REMOTE
13	OCCUPANT LOAD CANNOT EXCEED EGRESS WIDTH
14	ADA REQUIRES ACCESSIBLE ROUTE
15	ADA REQUIRES ACCESSIBLE FIXTURES



MAIN FLOOR PLAN



BASEMENT FLOOR PLAN

SCALE



LEGEND

- OCCUPANT LOAD AND EGRESS DIRECTION
- EXIT WITH OCCUPANT LOAD (ABOVE) CAPACITY (BELOW)
- REQUIRED FIRE RATED AREA
- LONGEST TRAVEL DISTANCE TO EXIT
- LONGEST COMMON PATH OF TRAVEL TO 2 MEANS OF EGRESS
- ASSEMBLY DIAGONAL DISTANCE
- ASSEMBLY EXIT REMOTENESS



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P: (603)731-7796 WWW.BARKERARCHITECTS.COM

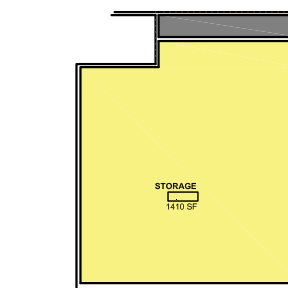
MONADNOCK REGIONAL SCHOOL DISTRICT
ELEMENTARY SCHOOLS ASSESSMENT STUDY
CUTLER ELEMENTARY SCHOOL
EXISTING CONDITIONS PLANS

DATE : OCTOBER 31, 2019
SCALE : AS NOTED









MAIN FLOOR PLAN

SCALE



BASEMENT FLOOR PLAN

LEGEND

-  CORRIDORS
-  STAIRS
-  TOILETS
-  CORE AREAS
-  SPECIALS
-  CLASSROOMS

BASIC INFORMATION

Location: 640 Rte 10 Gilsum, NH 03448	AREA	Building A	Building B	Building C	Total
	1st Floor	10178	7890		18068
	2nd Floor				0
	3rd Floor				0
	Total	10178	7890		18068
	Stories	1	1		
	Height	24	24		
	Footprint	10178	7890		
	Perimeter	456	562.5		912
	Const. Class	5b	5b		5b
	Building Type	S1	S1		
	Frontage min. 20'	263.5	276.5		
	Frontage min. 30'	62.5	276.5		
	Weighted Width	22.4	30	#DIV/0!	

APPLICABLE CODES

NEW HAMPSHIRE STATE BUILDING CODE

- 2015 EDITION INTERNATIONAL BUILDING CODE (IBC)
- 2015 EDITION INTERNATIONAL ENERGY CONSERVATION CODE (IECC)
- 2015 EDITION INTERNATIONAL EXISTING BUILDING CODE (IEBC)
- 2015 EDITION INTERNATIONAL MECHANICAL CODE (IMC)
- 2015 EDITION INTERNATIONAL PLUMBING CODE (IPC)
- 2017 EDITION NATIONAL ELECTRICAL CODE (NEC)

NEW HAMPSHIRE SAF-C 6000 BUILDING SAFETY CODE

- 2015 EDITION NFPA 1 UNIFORM FIRE CODE
- 2015 EDITION NFPA 101 LIFE SAFETY CODE

NEW HAMPSHIRE BARRIER FREE DESIGN CODE

- 2010 EDITION ADA STANDARDS FOR ACCESSIBLE DESIGN

NH DEPT OF EDUCATION STANDARDS

Approval of plan set by the State Fire Marshal required. Designs to meet the following codes:

State of NH Fire Code

2015 NFPA 101 - Life Safety Code

NH Code for Barrier Free Design and 2010 ADAAG when applicable

ANSI S12.60 Acoustical Performance Criteria, Design Requirements and Guidelines for Schools

Grade Level	Elementary	(Elementary, Middle, High)
Design Capacity:	125	students
Core Capacity:	160	students

Max. Building Size:
Max. Construction:

Minimum Size Standards

	Minimum Value	Preferred Total
Classrooms	36 s.f. per student	900 s.f.
Kindergartens	50 s.f. per student	1000 s.f.
Library	40 s.f. per student	1800 s.f.
Phys. Ed.	110 s.f. per student	700 s.f.
Office	60 s.f. per person	1200 s.f.
Nurse	1 cot per 200 stud.	300 s.f.

BUILDING DATA

Use and Occupancy Classification

		Building A	Building B	Building C	Total
Primary Use	Educational	11167	12636	2101	25904
Accessory Use	Assembly	1115	5157		6272
	Business	180	1757		1937
	Storage		540		540
	Misc.				
Total		12462	20090	2101	34653

Mixed Use No

Construction Type V
 Sprinklers Yes NFPA 13 30.3.5.2
 Fire Alarm System Yes 30.3.4.1.1

Refer to Code Plan for Use Area Locations.

OCCUPANT LOAD

Classification 7.3.1.2		Building A	Building B	Building C	Total
Educational					276
Classrooms	20sf/person	265			
Library (Reading)	50sf/person net	7			
Library (Stacks)	100sf/person	4			
Assembly					735
Non-Concentrate	15sf/person net		69		
Concentrated	7sf/person net		640		
Stage	15sf/person net		26		
Locker room	50sf/person				
Business					12
Offices	100sf/person	10			
Kitchen	200sf/ person		2		
Storage & Mech.	300sf/ person				
Total		286	737	0	1023

Refer to Code Plan for occupancy load per room.

MEANS OF EGRESS

		New Educational	Exist Educational	Provided	
Location of PK, K and 1st Grade	LED	14.2.1.2	15.2.1.2	COMPLIANT	
Corridor Width	6'-0"	14.2.3.2	15.2.3.2	COMPLIANT	
Number of Exits	2	14.2.4	15.2.4	NON-COMPLIANT	Building A
Rooms Over 1000 sf	2	14.2.5.4	15.2.5.4	NON-COMPLIANT	Kindergarten
Assembly over 500	3	7.4.1.2	7.4.1.2	COMPLIANT	
Dead End Corridor	50'	14.2.5.2	15.2.5.2	COMPLIANT	
Common Path of Travel	100'	14.2.5.3.2	15.2.5.3.2	COMPLIANT	
Travel Distance to Exit	200'	14.2.6.2	15.2.6.2	COMPLIANT	
Windows for Rescue	No	14.2.11.1.2(2)	15.2.11.1.2(2)	SPRINK. EXCEPT.	

Refer to Code Plan for Egress, Exit Access, Maximum Travel, Maximum Common Path and Maximum Dead End Corridor.

PROTECTION

	Hours		Hours
Exit Stairs	1	Hazardous Rooms	
Shafts	1	Boiler Room	SPRINKLER 15.3.2.1
Horizontal Assemblies	1	Storage Room	SPRINKLER 15.3.2.1
Exit Access Corridors	S 14.3.6(2)	Janitor Closet	SPRINKLER 15.3.2.1
Smoke Compartments	N/A 14.3.7.2(2)		

See Code Plan for locations of rated partitions.

INTERIOR FINISHES

Allowable Finishes	Class
Exits and Exit Passageways	A
Exit Access Corridors	B
Other Areas	C

Table B

Gilsum Elementary School

IBC - Code Review

BUILDING DATA

Use and Occupancy Classification					
Building A	Primary Use	E	Number of Stories	1	
Fire Area #1	Accessory Use	A	Height	24 LF	
	Accessory Use	B	1st Floor	10178 SF	
	Mixed Use	No	2nd Floor	0 SF	
	Construction Type	5b	3rd Floor	0	
	Sprinklers	Yes	Footprint	10178 LF	
	Building Type	S1	Perimeter	456 LF	
			Frontage	263.5 LF	
			Weighted Width	22.4 LF	

This Fire Area Meet Code for Height This Fire Area Within Allowable Area

Building B					
Fire Area #2	Primary Use	A-3	Number of Stories	1	
	Accessory Use	E	Height	24.00 LF	
	Mixed Use	No	1st Floor	7890 SF	
	Construction Type	5b	2nd Floor	0	
	Sprinklers	Yes	3rd Floor	0	
	Building Type	S1	Footprint	7890 LF	
			Perimeter	562.5 LF	
			Frontage	276.5 LF	
			Weighted Width	30 LF	

This Fire Area Meet Code for Height This Fire Area Within Allowable Area

Building C					
Fire Area #3	Primary Use	E	Number of Stories	0	
	Accessory Use		Area Height	0 LF	
	Mixed Use	No	1st Floor	0 SF	
	Construction Type	5b	2nd Floor	0	
	Sprinklers	Yes	3rd Floor	0	
	Building Type	S1	Footprint	0 LF	
			Perimeter	0 LF	
			Frontage	0 LF	
			Weighted Width	#DIV/0! LF	

This Fire Area Meet Code for Height This Fire Area Within Allowable Area

	Fire Area #1	Fire Area #2	Fire Area #3	
Separated Uses	0	0	0	
Fire Alarm System	Yes	Yes	Yes	
Existing Building Alteration Level				1, 2, 3

CONSTRUCTION CLASSIFICATION

Table 601		Fire Area #1	Fire Area #2	Fire Area #3
		5b	5b	5b
Element		Rating	Rating	Rating
Primary Structural Frame		0	0	0
Bearing Walls	Exterior	0	0	0
	Interior	0	0	0
Non Bearing	Exterior	0	0	0
	Interior	0	0	0
Floors		0	0	0
Roofs		0	0	0

See Code Plan for locations of rated partitions.

PROTECTION

	Hours		Incidental Rooms	Hours
Firewalls	2	Table 706.4	Table 508.2.5	
Fire Barriers	1	Table 707.3.9	Boiler Room	1
Shafts	1	708.4	Sprinkler Room	1
Fire Partitions	1	709.1		
Exit Stairs	1	708		
Horiz. Assemblies	1	712		
Exit Access	Smoke	1018.1		

See Code Plan for locations of rated partitions.

INTERIOR FINISHES

Allowable Finishes	Table 803.9	Fire Area #1	Fire Area #2	Fire Area #3
Exits and Exit Passageways		B	B	B
Exit Access Corridors		C	C	C
Other Areas		C	C	C

OCCUPANT LOAD

Classification	1004.1.1	Building A	Building B	Building C	Total
Educational					276
Classrooms	20sf/person gross	265			
Library (Reading)	50sf/person net	7			
Library (Stacks)	100sf/person gross	4			
Assembly					735
Non-Concentrated	15sf/person net		69		
Concentrated	7sf/person net		640		
Stage	15sf/person net		26		
Locker room	50sf/person				
Business					12
Offices	100sf/person gross	10			
Kitchen	200sf/ person gross	0	2		
Storage & Mech.	300sf/ person	0			
TOTAL		286	737	0	1023

Refer to Code Plan for Egress, Exit Access, Maximum Travel , Maximum Common Path and Maximum Dead End Corridor.

MEANS OF EGRESS

		Required		Provided/Worst Case
Number of Exits	Under 49 occ.	1	1006.2.1	1
	Over 49 under 500	2	1006.2.1	2
	Over 500 under 100	3	1006.2.1.1	3
Common Path of Travel		75	Table 1006.2.1	46
Exit Access Travel Distance		250	Table 1017.2	141
Dead End Corridor		50	1020.4(2)	16

PLUMBING REQUIREMENTS

Primary Use	Classification	Required		Showers	Drinking Fountains	Service Sink
		Water Closets	Lavatories			
Primary Use	E	6	6	-	3	1
Accessory Use	A				2	1
	Men	3	2	-		
	Women	6	2	-		
	B	1	1	-	1	1
Provided						
Primary Use	Classification	Water Closets	Lavatories	Showers	Drinking Fountains	Service Sink
		8	6	1	0	0
Accessory Use	A				0	
	Men	1	1	-		
	Women	1	1	-		
	B	1	1	-	0	
		NON-COMPLIANT	NON-COMPLIANT	COMPLIANT	NON-COMPLIANT	NON-COMPLIANT

Uses are not subject to simultaneous occupancy so therefore fixtures can be shared between uses. This does require that toilet facilities in other parts of the building from the gymnasium be open when the gym is in use.

ENERGY CODE

		Required	Provided	
Roof	(Attic and Other)	R-30ci	COMPLIANT	Only in 1996 addition. NON-COMPLIANT elsewhere
Walls	(Wood Framed)	R-11.4ci	COMPLIANT	Only in 1996 addition. NON-COMPLIANT elsewhere
Below Grade		R-7.5ci	COMPLIANT	Only in 1996 addition. NON-COMPLIANT elsewhere
Heated Slabs		R-15 for 24"	N/A	
Doors		U-0.70	NON-COMPLIANT	Unknown
Windows		U-0.35	NON-COMPLIANT	Unknown

Table C

Gilsum Elementary School

Existing Building Needs

	1st Floor	Total
Area	18,068	18,068
Perimeter	912	912

Cat	Item	Existing Descriptions	Corrective Measure	Cost / Priority			
				High	Medium	Low	Future
Site	1 Minimum Size Lot	The site is owned by the town.					
	2 Water and Septic	On-site water and sewer and fire cistern dating to the 1980's.	At some point the septic system will need to be replaced. Other systems will required maintenance as they age.			\$ 50,000	
	3 Bus/Car Separation	The limited driveway space does not provide adequate car and bus separation, but due to the small enrollment it is not currently an issue.					
	4 Parking/Drives						
	5 Playground/Playfields						
	6 Site Features	Handicap Ramp in disrepair.	Repair ramp. Rebuild ramp				
	7 Grading/Drainage	On-site drainage. Courtyard hard to drain and keep clear of snow.	Reconfigure courtyard to drain properly.			\$ 250,000	
	8 Oil, Propane Tank Age/Condition	On-site underground oil tank that is 20+ years old. Its location makes it difficult to replace.	Provide new tanks for heating fuel.		\$ 40,000		
Envelope	9 Roof Condition	The asphalt shingles appear to be at the end of their expected life. Ice damming occurring.	Replace roof shingles. Improve roof edge insulation. Reconfigure canopy to shed water more efficiently. Some work already completed.	\$ 70,000	\$ 5,000		
	10 Wall Condition (insulation and moisture protection)						
	11 Door Condition (energy efficiency and operation)						
	12 Window Condition (energy efficiency and operation)	Windows in 1970's wing appear to be nearing the end of their useful life.	Repair or cover gaps at window sills	\$ 30,000			
	13 Foundation Condition (insulation and moisture protection)						
Life Safety	14 K-2 location based on LED						
	15 Panic devices						
	16 Stair Details (Rise/Run, Railings)	Handrails at exterior stair at music room does not meet code.	Replace with code complaint handrail.		\$ 4,000		
	17 Areas of Refuge						
	18 Capacity of Means of Egress						
	19 Corridor Width						
	20 Number of Exits						
	21 Dead-end Corridors						
	22 Exits through Intervening Rooms						
	23 Door Arrangement						
Building Code	24 Travel Distance						
	25 Means of Escape						
	26 Protection of Vertical Openings						
	27 Protection of Hazards						
	28 Protection of Corridors						
	29 Smoke Compartments						
	30 Fire Alarm, Emergency lights and Exit lighting	Current system 20 years old and archaic.	Replace with new addressable system.		\$ 50,000		
	31 Furnishings, Decorations and Personal Effects in the Corridor						
	32 Height and Area Limitations						
	33 Construction Classification						
Structural	34 Fire Rated Construction						
	35 Sprinklers	The building has an automatic sprinkler system.					
Accessibility	36 Fire Protection						
	37 Snow Load Capacity						
	38 Wall Condition (seismic capacity, cracks or deflection)						
	39 Floor Load Capacity						
	40 Foundation Condition (cracks or rot)						
	41 Parking	Not well defined.					
	42 Building Access						
	43 Accessible Route	Some interior ramps are too steep.	Rebuild ramps to meet ADAAG.		\$ 25,000		
	44 Clearances						
	45 Door Hardware						
Indoor Environmental Quality	46 Stair Details						
	47 Toilet Facilities	The current gang toilets are not handicap accessible.			\$ 135,000		
	48 Signage						
	49 Elevator	N/A					
	50 Ventilation	Lack of proper ventilation through majority of the building. Gymnasium appears adequate. 1970's wing has unit ventilators that are blocked and archaic.	Install new ventilation system throughout with the exception of the 1990's wing.	\$ 325,000			
Build. Services	51 Thermal Control	There currently is no air conditioning. Control system is archaic.	Add air conditioning in future improvements. Add a DDC system.		\$ 120,000	\$ 125,000	
	52 Moisture / Mold	High humidity experienced in the lower level.	Provide commercial dehumidification.		\$ 20,000		
	53 Lighting Quality						
	54 Acoustics						
	55 Sanitation						
Interior	56 Boiler Condition and Distribution	Hydronic system with a variety of delivery methods.	Upgrade heating system.			\$ 160,000	
	57 Water Supply						
	58 Plumbing / Fixture Count	Fixtures are aging.	Upgrade as part of ADA upgrades			\$ 15,000	
	59 Kitchen Equipment						
	60 Main Electrical Service	Updated in the 1990's					
	61 Generator	None					
	62 Power Distribution	Most wiring is Romex and not code compliant.	Upgrade wiring to metal clad.			\$ 125,000	
	63 Lighting Efficiency	Light fixtures are currently fluorescents and not as efficient as newer technology.	Replace lighting with LED fixtures.	\$ 90,000			
	64 Site lighting	No site lighting beyond building lights.	Add fixtures in parking lot.			\$ 10,000	
	65 Roof Drains						
Security and Safety	66 Phone, Intercom, Security	The phone and intercom are aging.	Replace phone and intercom with an integrated VOIP system.			\$ 25,000	
	67 Ceilings	Most of the ceiling tile throughout the building, with the exception of the 1990's wing should be replaced.	Replace ceiling tiles throughout with the exception of the 1990's wing.	\$ 36,000			
	68 Walls						
	69 Floors	Some floor tiles in poor condition. There may be hazardous material present.	Abate and replace aging floor tile.		\$ 20,000		
	70 Doors	The doors in the most parts of the building with the exception of the 1990's wing show significant wear.	Replace doors that are damaged.			\$ 12,000	
Miscellaneous	71 Cabinetry	Classrooms lack cabinetry.	Add cabinets to meet district standard.			\$ 38,000	
	72 Fixed Equipment	Basketball backstop not functioning properly.	Investigate and fix backstop.	\$ 1,500			
	73 Visual Display Boards	The white boards and tack boards are adequate but do not up to date with current display technology.	Install new smart TV monitors to match district standard.		\$ 7,500		
	74 Lock-down of public areas	Gymnasium can be locked down.					
	75 Secure Visitor Check-in	No secure check-in. Main office remote from entrance.	Reconfigure main office to be connected to a front entrance.	\$ 100,000			
Miscellaneous	76 Technology	School has cameras.					
	77 Physical Hazards						
	78 Hazardous Materials	Some asbestos exists in the building.	Abate and replace with new material.		\$ 10,000		
	79 Visibility	Main office is remote from parking and playfields.	??				
	80 Miscellaneous upgrades including access to exterior mechanical door.						
81 Nurse Station	The nurse' station is in what was previously a kitchen and is not adequately laid out.	Renovate nurse' area.			\$ 80,000		
82							
83							
84							
85							

\$ 562,500	\$ 501,500	\$ 915,000	\$ -
------------	------------	------------	------

Total Renovations \$ 1,979,000

TTG Study Recommendations
 Changes to TTG Study
 Barker Architects Recommendations

	Value of	Renovation	Renovation
	Existing	Minimum	Maximum
Cost Per S.F.			
State Funding Thresholds	\$ 178	\$ 3,216,104	\$ 804,026 \$ 1,929,662

Gilsum Elementary School

Curriculum Worksheet

Design Capacity	100
Core Capacity (Theoretical Max.)	160
Periods Per Day	6
Number of grades (include K)	7

<u>Subject</u>	Avg.		Max.		Teaching Stations	
	Students/ grade	Avg. Size	Students/ grade	Max Size		
Pre-Kindergarten						
Kindergarten / Pre-K (1)(4)	14	18	20	20	1.0	
General Classrooms (4)						
1/2 Grade Classrooms	29	18	48	24	2.0	
3/4 Grade Classrooms	29	20	48	24	2.0	
5/6 Grade Classrooms	29	22	48	24	2.0	
				General Classroom	Total	6.0
	% enrolled	Total	Max Size	Meetings / Week	Required Stations	
Special Ed. /Specialists (2)	20%	32	6	10	2.0	
Resource						
OT / PT						
Speech						
Reading						
Regular Ed Special Rooms						
Science						
Art	100%	160	25	1	1.0	
Music	100%	160	25	1	0.0	
Phys. Ed.	100%	160	25	2	1.0	(3)

1 Kindergarten is full day.

Actual Special Ed and Specialists required spaces varies considerably from school to school.

2 Socialists include regular ed small group instruction. Above calculation is solely for computing purposes. Required spaces should be base on actual programs.

3 Gymnasium to be designed for 2 teachings stations simultaneously.

4 Multi-Age classrooms employed to create more efficient class sizes.

Table E

Barker Architects, PLLC

11/17/2019

Gilsum Elementary School

Space Needs Worksheet

Design Capacity 100
Core Capacity 160

ELEMENT	DESIGN			EXISTING				COMMENT	
	#	SIZE	TOTAL	#	SIZE	TOTAL			
EDUCATIONAL SPACES	Pre-Kindergarten							With current low enrollments, multi-age classrooms work. With any increase, additional classrooms would be needed.	
	Kindergarten / Pre-K	1	1000	1000	1	1337	1337		134%
	Classrooms	6	900	5400	3	1007	3021		56%
	Art	1	1000	1000	1	931	931		93%
	Music								
	Special Ed. /Specialists	2	360	720	0	0	0		0%
CORE SPACES	Phys Ed						5600	4605	82%
	Food Service								
	Caf. / Multi-Purpose Rm			800				1033	129%
	Kitchen			373				1362	365%
	Assembly			1000				388	39%
	Library			1800				650	36%
	Stacks	1	1400						
	Computer	1	400						
	Offices			1200				465	39%
	Admin./Guid.		900			304			
	Faculty / Work		0			0			
	Nurse		300			161			
	Subtotal			18893				13792	
	Misc. -Circ, Mech, Toilets, Janitor Storage		40%	7557				4276	

Totals

26451

18068

Sq. Ft. / Student (Design Cap.)

265

181

Sq. Ft. / Student (Core Cap.)

165

113

Table F

Barker Architects, PLLC

11/17/2019

Mt Caesar Elementary School



View of front entrance.



View of side of building.



View of cafeteria.
Note that this is also used for physical education.



Mechanical system in the cafeteria.



Typical corridor.
Note ramp in corridor.



Special Education Space.



This school is mostly upgraded but some areas still show signs of wear such as this door that has been damaged by a door chock.



Typical classroom.



REVISIONS

KEY PLAN

NOTES

CONSULTANTS

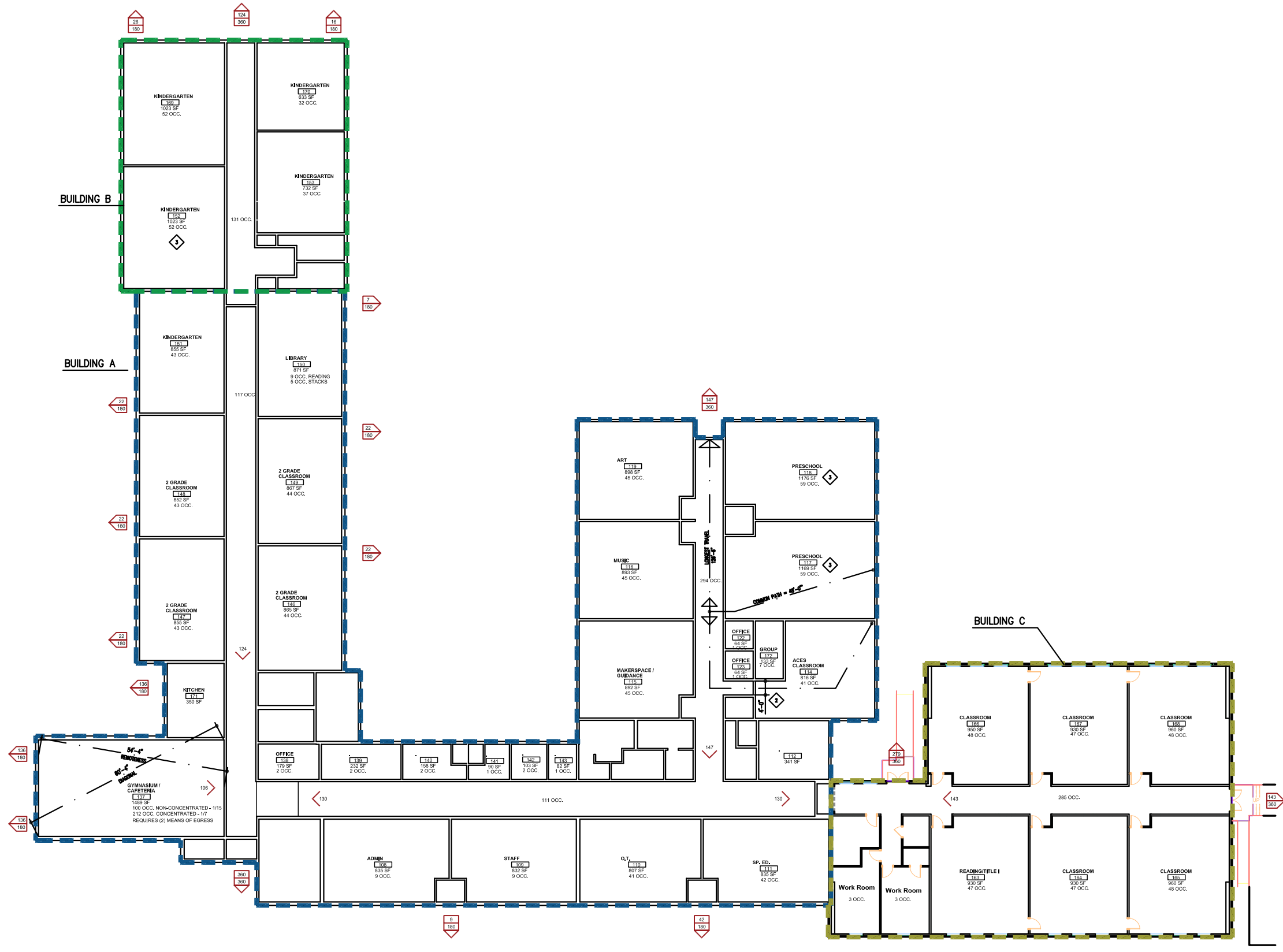


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MONADNOCK REGIONAL SCHOOL DISTRICT
ELEMENTARY SCHOOLS ASSESSMENT STUDY

MT CEASAR SCHOOL
EXISTING SITE PLAN

DATE : OCTOBER 31, 2019
SCALE : AS NOTED





MAIN FLOOR PLAN

SCALE

LEGEND

- CORRIDORS
- STAIRS
- TOILETS
- CORE AREAS
- SPECIALS
- CLASSROOMS

REVISIONS

KEY PLAN

NOTES

CONSULTANTS



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MONADNOCK REGIONAL SCHOOL DISTRICT
ELEMENTARY SCHOOLS ASSESSMENT STUDY
CUTLER ELEMENTARY SCHOOL
EXISTING CONDITIONS PLANS

DATE : OCTOBER 31, 2019
SCALE : AS NOTED

EX3

BASIC INFORMATION

Location: 585 Old Homestead Hwy Swanzy, NH 03446	AREA	Building A	Building B	Building C	Total
	1st Floor	25516	4733	8240	38489
	2nd Floor				0
	3rd Floor				0
	Total	25516	4733		38489
	Stories	1	1	1	
	Height	18	12	18	
	Footprint	25516	4733	8240	
	Const. Class	5b	3b	2b	
	Building Type	S1	S1	S1	
	Perimeter	684	275.5	392	
	Frontage min. 20'	909	215	293.5	
	Frontage min. 30'	909	215	293.5	
	Weighted Width	30.0	30	30.0	

APPLICABLE CODES

NEW HAMPSHIRE STATE BUILDING CODE

- 2015 EDITION INTERNATIONAL BUILDING CODE (IBC)
- 2015 EDITION INTERNATIONAL ENERGY CONSERVATION CODE (IECC)
- 2015 EDITION INTERNATIONAL EXISTING BUILDING CODE (IEBC)
- 2015 EDITION INTERNATIONAL MECHANICAL CODE (IMC)
- 2015 EDITION INTERNATIONAL PLUMBING CODE (IPC)
- 2017 EDITION NATIONAL ELECTRICAL CODE (NEC)

NEW HAMPSHIRE SAF-C 6000 BUILDING SAFETY CODE

- 2015 EDITION NFPA 1 UNIFORM FIRE CODE
- 2015 EDITION NFPA 101 LIFE SAFETY CODE

NEW HAMPSHIRE BARRIER FREE DESIGN CODE

- 2010 EDITION ADA STANDARDS FOR ACCESSIBLE DESIGN

NH DEPT OF EDUCATION STANDARDS

Approval of plan set by the State Fire Marshal required. Designs to meet the following codes:

State of NH Fire Code

2015 NFPA 101 - Life Safety Code

NH Code for Barrier Free Design and 2010 ADAAG when applicable

ANSI S12.60 Acoustical Performance Criteria, Design Requirements and Guidelines for Schools

Grade Level	Elementary	(Elementary, Middle, High)
Design Capacity:	275	students
Core Capacity:	370	students

Max. Building Size:
Max. Construction:

Minimum Size Standards

	Minimum Value	Preferred Total
Classrooms	36 s.f. per student	900 s.f.
Kindergartens	50 s.f. per student	1000 s.f.
Library	40 s.f. per student	1800 s.f.
Phys. Ed.	110 s.f. per student	700 s.f.
Office	60 s.f. per person	1200 s.f.
Nurse	1 cot per 200 stud.	300 s.f.

Mt Caesar Elementary School

NFPA 101 - Life Safety Code Review

BUILDING DATA

Use and Occupancy Classification

		Building A	Building B	Building C	Total
Primary Use	Educational	6293	3411	5660	15364
Accessory Use	Assembly	1489			1489
	Business	2017		590	2607
	Storage	240			240
	Misc.	1313	1322	1990	
Total		11352	4733	8240	24325

Mixed Use	No	
Construction Type	V	
Sprinklers	Yes	NFPA 13 30.3.5.2
Fire Alarm System	Yes	30.3.4.1.1

Refer to Code Plan for Use Area Locations.

OCCUPANT LOAD

Classification		Building A	Building B	Building C	Total
Educational	7.3.1.2				1073
Classrooms	20sf/person	601	173	285	
Library (Reading)	50sf/person net	9			
Library (Stacks)	100sf/person	5			
Assembly					212
Non-Concentrate	15sf/person net				
Concentrated	7sf/person net	212			
Stage	15sf/person net				
Locker room	50sf/person				
Business					43
Offices	100sf/person	35		6	
Kitchen	200sf/ person	2			
Storage & Mech.	300sf/ person				
Total		864	173	291	1328

Refer to Code Plan for occupancy load per room.

MEANS OF EGRESS

		New Educational	Exist Educational	Provided
Location of PK, K and 1st Grade	LED	14.2.1.2	15.2.1.2	COMPLIANT
Corridor Width	6'-0"	14.2.3.2	15.2.3.2	COMPLIANT
Number of Exits	2	14.2.4	15.2.4	COMPLIANT
Rooms Over 1000 sf	2	14.2.5.4	15.2.5.4	NON-COMPLIANT
Assembly over 500	3	7.4.1.2	7.4.1.2	N/A
Dead End Corridor	50'	14.2.5.2	15.2.5.2	COMPLIANT
Common Path of Travel	100'	14.2.5.3.2	15.2.5.3.2	COMPLIANT
Travel Distance to Exit	200'	14.2.6.2	15.2.6.2	COMPLIANT
Windows for Rescue	No	14.2.11.1.2(2)	15.2.11.1.2(2)	SPRINK. EXCEPT.

Refer to Code Plan for Egress, Exit Access, Maximum Travel, Maximum Common Path and Maximum Dead End Corridor.

PROTECTION

	Hours		Hours
Exit Stairs	1	Hazardous Rooms	
Shafts	1	Boiler Room	SPRINKLER 15.3.2.1
Horizontal Assemblies	1	Storage Room	SPRINKLER 15.3.2.1
Exit Access Corridors	S	Janitor Closet	SPRINKLER 15.3.2.1
Smoke Compartments	N/A		
		14.3.6(2)	
		14.3.7.2(2)	

See Code Plan for locations of rated partitions.

INTERIOR FINISHES

Allowable Finishes	Class
Exits and Exit Passageways	A
Exit Access Corridors	B
Other Areas	C

Table B

Mt Caesar Elementary School

IBC - Code Review

BUILDING DATA

Use and Occupancy Classification					
Building A	Primary Use	A-3	Number of Stories	1	
Fire Area #1	Accessory Use	E	Height	18 LF	
	Accessory Use	B	1st Floor	25516 SF	
	Mixed Use	No	2nd Floor	0 SF	
	Construction Type	5b	3rd Floor	0	
	Sprinklers	Yes	Footprint	25516 LF	
	Building Type	S1	Perimeter	684 LF	
			Frontage	909 LF	
			Weighted Width	30.0 LF	

This Fire Area Meet Code for Height

This Fire Area Within Allowable Area

Building B					
Fire Area #2	Primary Use	E	Number of Stories	1	
	Accessory Use	B	Height	12 LF	
	Mixed Use	No	1st Floor	4733 SF	
	Construction Type	3b	2nd Floor		
	Sprinklers	Yes	3rd Floor		
	Building Type	S1	Footprint	4733 LF	
			Perimeter	275.5 LF	
			Frontage	215 LF	
			Weighted Width	30 LF	

This Fire Area Meet Code for Height

This Fire Area Within Allowable Area

Building C					
Fire Area #3	Primary Use	E	Number of Stories	1	
	Accessory Use	B	Area Height	18 LF	
	Mixed Use	No	1st Floor	8240 SF	
	Construction Type	2b	2nd Floor		
	Sprinklers	Yes	3rd Floor		
	Building Type	S1	Footprint	8240 LF	
			Perimeter	392 LF	
			Frontage	293.5 LF	
			Weighted Width	30 LF	

This Fire Area Meet Code for Height

This Fire Area Within Allowable Area

	Fire Area #1	Fire Area #2	Fire Area #3	
Separated Uses	1	1	1	
Fire Alarm System	Yes	Yes	Yes	
Existing Building Alteration Level				1, 2, 3

CONSTRUCTION CLASSIFICATION

Table 601		Fire Area #1	Fire Area #2	Fire Area #3
		5b	3b	2b
Element		Rating	Rating	Rating
Primary Structural Frame		0	0	0
Bearing Walls	Exterior	0	1	0
	Interior	0	0	0
Non Bearing	Exterior	0	0	0
	Interior	0	0	0
Floors		0	0	0
Roofs		0	0	0

See Code Plan for locations of rated partitions.

PROTECTION

	Hours		Incidental Rooms	Hours
Firewalls	2	Table 706.4	Table 508.2.5	
Fire Barriers	1	Table 707.3.9	Boiler Room	1
Shafts	1	708.4	Sprinkler Room	1
Fire Partitions	1	709.1		
Exit Stairs	1	708		
Horiz. Assemblies	1	712		
Exit Access	Smoke	1018.1		

See Code Plan for locations of rated partitions.

INTERIOR FINISHES

Allowable Finishes	Table 803.9	Fire Area #1	Fire Area #2	Fire Area #3
Exits and Exit Passageways		B	B	B
Exit Access Corridors		C	C	C
Other Areas		C	C	C

OCCUPANT LOAD

Classification	1004.1.1	Building A	Building B	Building C	Total
Educational					
Classrooms	20sf/person gross	601	173	285	1073
Library (Reading)	50sf/person net	9			
Library (Stacks)	100sf/person gross	5			
Assembly					
Non-Concentrated	15sf/person net				212
Concentrated	7sf/person net	212			
Stage	15sf/person net				
Locker room	50sf/person				
Business					
Offices	100sf/person gross	35			37
Kitchen	200sf/ person gross	2			
Storage & Mech.	300sf/ person				
TOTAL		864	173	285	1322

Refer to Code Plan for Egress, Exit Access, Maximum Travel , Maximum Common Path and Maximum Dead End Corridor.

MEANS OF EGRESS

		Required		Provided/Worst Case	
Number of Exits	Under 49 occ.	1	1006.2.1	1	Several rooms over 1,000 and 50 occ.
	Over 49 under 500	2	1006.2.1	1	
	Over 500 under 100	3	1006.2.1.1	N/A	
Common Path of Travel		75	Table 1006.2.1	48	
Exit Access Travel Distance		250	Table 1017.2	126	
Dead End Corridor		50	1020.4(2)	12	

PLUMBING REQUIREMENTS

Primary Use	Classification	Required 2902.1				
		Water Closets	Lavatories	Showers	Drinking Fountains	Service Sink
Primary Use	E	22	22	-	11	1
Accessory Use	A				1	1
	Men	1	1	-		
	Women	2	1	-		
	B	2	1	-	1	1
Provided						
Primary Use	Classification	Water Closets	Lavatories	Showers	Drinking Fountains	Service Sink
		21	19	-	1	2
Accessory Use	A				0	
	Men			-		
	Women			-		
	B	3	2	-	0	
		NON-COMPLIANT	NON-COMPLIANT	COMPLIANT	NON-COMPLIANT	NON-COMPLIANT

Uses are not subject to simultaneous occupancy so therefore fixtures can be shared between uses. This does require that toilet facilities in other parts of the building from the gymnasium be open when the gym is in use.

ENERGY CODE

Using Prescriptive Method for compliance		Required	Provided		
Roof	(Attic and Other)	R-30ci	NON-COMPLIANT	Unknown	Assume that latestest addition meets but older sections do not.
Walls	(Wood Framed)	R-11.4ci	NON-COMPLIANT	Unknown	
Below Grade		R-7.5ci	N/A		
Heated Slabs		R-15 for 24"	N/A		
Doors		U-0.70	NON-COMPLIANT	Unknown	Assume that latestest addition meets but older sections do not.
Windows		U-0.35	NON-COMPLIANT	Unknown	

Mt Ceasar Elementary School

Existing Building Needs

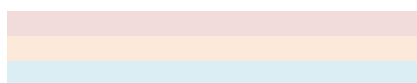
	1st Floor	Total
Area	38,488	38,488
Perimeter		1,602

Cat	Item	Existing Descriptions	Corrective Measure	Cost / Priority			
				High	Medium	Low	Future
Site	1 Minimum Size Lot	On-site water and septic. 20 +/- years old. Soils are good for septic and system should last. Driveways are being reviewed now.					
	2 Water and Septic						
	3 Bus/Car Separation						
	4 Parking/Drives						
	5 Playground/Playfields			Adequate.			
	6 Site Features						
	7 Grading/Drainage			Site well drained.			
	8 Oil, Propane Tank Age/Condition			New owned proposne buried tanks.			
Envelope	9 Roof Condition	New in 2003.	Good for 15 years.				
	10 Wall Condition (insulation and moisture protection)	Recently upgraded.					
	11 Door Condition (energy efficiency and operation)	Good condition.					
	12 Window Condition (energy efficiency and operation)	Recently replaced.					
	13 Foundation Condition (insulation and moisture protection)	Good condition.					
Life Safety	14 K-2 location based on LED	There are several classrooms that are over 1000 sf without a second means of egress.	Install doors to the exterior.	\$	15,000		
	15 Panic devices			Recently replaced.			
	16 Stair Details (Rise/Run, Railings)						
	17 Areas of Refuge						
	18 Capacity of Means of Egress						
	19 Corridor Width						
	20 Number of Exits						
	21 Dead-end Corridors						
	22 Exits through Intervening Rooms						
	23 Door Arrangement						
	24 Travel Distance						
Building Code	25 Means of Escape	The building has an automatic sprinkler system.					
	26 Protection of Vertical Openings						
	27 Protection of Hazards						
	28 Protection of Corridors						
	29 Smoke Compartments						
	30 Fire Alarm, Emergency lights and Exit lighting			Replaced in 2012 wit addressable system.			
	31 Furnishings, Decorations and Personal Effects in the Corridor						
	32 Height and Area Limitations						
	33 Construction Classification						
	34 Fire Rated Construction						
Structural	35 Sprinklers						
	36 Fire Protection						
	37 Snow Load Capacity						
	38 Wall Condition (seismic capacity, cracks or deflection)						
Accessibility	39 Floor Load Capacity	Complies with some exceptions.				\$	25,000
	40 Foundation Condition (cracks or rot)						
	41 Parking			Complies.			
	42 Building Access			Complies.			
	43 Accessible Route			Complies.			
	44 Clearances						
	45 Door Hardware						
	46 Stair Details						
	47 Toilet Facilities						
Indoor Environmental Quality	48 Signage	New system with full A/C New web-based digital controls.					
	49 Elevator						
	50 Ventilation						
	51 Thermal Control						
	52 Moisture / Mold						
Build. Services	53 Lighting Quality	All new LED.	Add toilet rooms to Kindergarten and 1st Grade.			\$	50,000
	54 Acoustics						
	55 Sanitation						
	56 Boiler Condition and Distribution	New boilers.					
	57 Water Supply						
	58 Plumbing / Fixture Count						
	59 Kitchen Equipment						
	60 Main Electrical Service	Recently replaced.					
	61 Generator	No generator.					
	62 Power Distribution	Recently replaced.					
Interior	63 Lighting Efficiency	Recently replaced.	Continue upgrades.			\$	75,000
	64 Site lighting	Being reviewed.					
	65 Roof Drains						
	66 Phone, Intercom, Security	Recently replaced.					
	67 Ceilings	Recently replaced.					
	68 Walls						
	69 Floors	Most have been replaced.					
Security and Safety	70 Doors	All new.	Create new vestibule that is locked with a direct window to the main office.			\$	100,000
	71 Cabinetry						
	72 Fixed Equipment						
	73 Visual Display Boards			All new. Every classroom has digital displays.			
	74 Lock-down of public areas			No gymnasium so therefore little to no public use.			
Miscellaneous	75 Secure Visitor Check-in	No secure entrance. Main Office somewhat remote from Lobby.					
	76 Technology						
	77 Physical Hazards						
	78 Hazardous Materials						
	79 Visibility						
80							
81							
82							
83							
84							
85							

\$	115,000	\$	100,000	\$	50,000	\$	-
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Total Renovations \$ 265,000

TTG Study Recommendations
Changes to TTG Study
Barker Architects Recommendations



	Cost Per S.F.	Value of Existing	Renovation Minimum	Renovation Maximum
State Funding Thresholds	\$ 178	\$ 6,850,864	\$ 1,712,716	\$ 4,110,518

Mt Ceasar Elementary School

Curriculum Worksheet

Design Capacity	275
Core Capacity (Theoretical Max.)	310
Periods Per Day	6
Number of grades (include K)	3

<u>Subject</u>	Avg.		Max.		Teaching Stations
	Students/grade	Avg. Size	Students/grade	Max Size	
Pre-Kindergarten	28	16	36	18	2.0
Kindergarten (1)	83	16	108	18	6.0
1 Grade Classrooms	83	18	100	20	5.0
2 Grade Classrooms	83	18	100	20	5.0
					10.0
	% enrolled	Total	Max Size	Meetings / Week	Required Stations
Special Ed. /Specialists (2)	20%	62	6	10	4.0
Resource					
OT / PT					
Speech					
Reading					
Regular Ed Special Rooms					
Science					
Art	100%	310	25	1	1.0
Music	100%	310	25	1	0.0
Phys. Ed. (3)	100%	310	25	2	1.0

1 Kindergarten is full day.

Actual Special Ed and Specialists required spaces varies considerably from school to school.

2 Socialists include regular ed small group instruction. Above calculation is solely for computing purposes. Required spaces should be base on actual programs.

3 Gymnasium to be designed for 2 teachings stations simultaneously.

Table E

Barker Architects, PLLC

11/17/2019

Mt Caesar Elementary School

Space Needs Worksheet

Design Capacity 275
Core Capacity 310

ELEMENT	DESIGN			EXISTING				COMMENT	
	#	SIZE	TOTAL	#	SIZE	TOTAL			
EDUCATIONAL SPACES	Pre-Kindergarten	2	1000	2000	2	1173	2345	117%	There is a wide range of classroom sizes. Some are well below DOE recommendations.
	Kindergarten	6	1000	6000	5	853	4266	71%	
	Classrooms	10	900	9000	9	908	8169	91%	
	Art	1	1000	1000	1	898	898	90%	
	Music	0	1000	0	1	893	893		
	Special Ed. /Specialists	4	360	1440	4	847	3388	235%	
	Phys Ed			5600			0	0%	
CORE SPACES	Food Service								
	Caf. / Multi-Purpose Rm			1550			1489	96%	
	Kitchen			723			350	48%	
	Assembly			1000			0	0%	
	Library			1800			871	48%	
	Stacks	1	1400						
	Computer	1	400						
	Offices			1240			3101	250%	
	Admin./Guid.		900						
	Faculty / Work		40						
	Nurse		300						
	Subtotal			31353			23425		
	Misc. -Circ, Mech, Toilets, Janitor Storage		40%	12541		64%	15063		Due to functional obsolescence there is a high level of non-program space.
Totals			43895			38488			
Sq. Ft. / Student (Design Cap.)			160			140			
Sq. Ft. / Student (Core Cap.)			142			124			

Table F

Barker Architects, PLLC

11/17/2019

Troy Elementary School



Front Entrance.
Note the fencing on the roof to prevent unauthorized access.



Street-side view of school from driveway.



View from lobby to stairs.
Note that the fire doors open onto the ramp.
Also note the stair lift attached to the railing impeding with
the railing use.



Doors at the top of the stair open over the stairs and have
been notched to clear the stair lift making them not fire
rated.



Typical Classroom in original building.



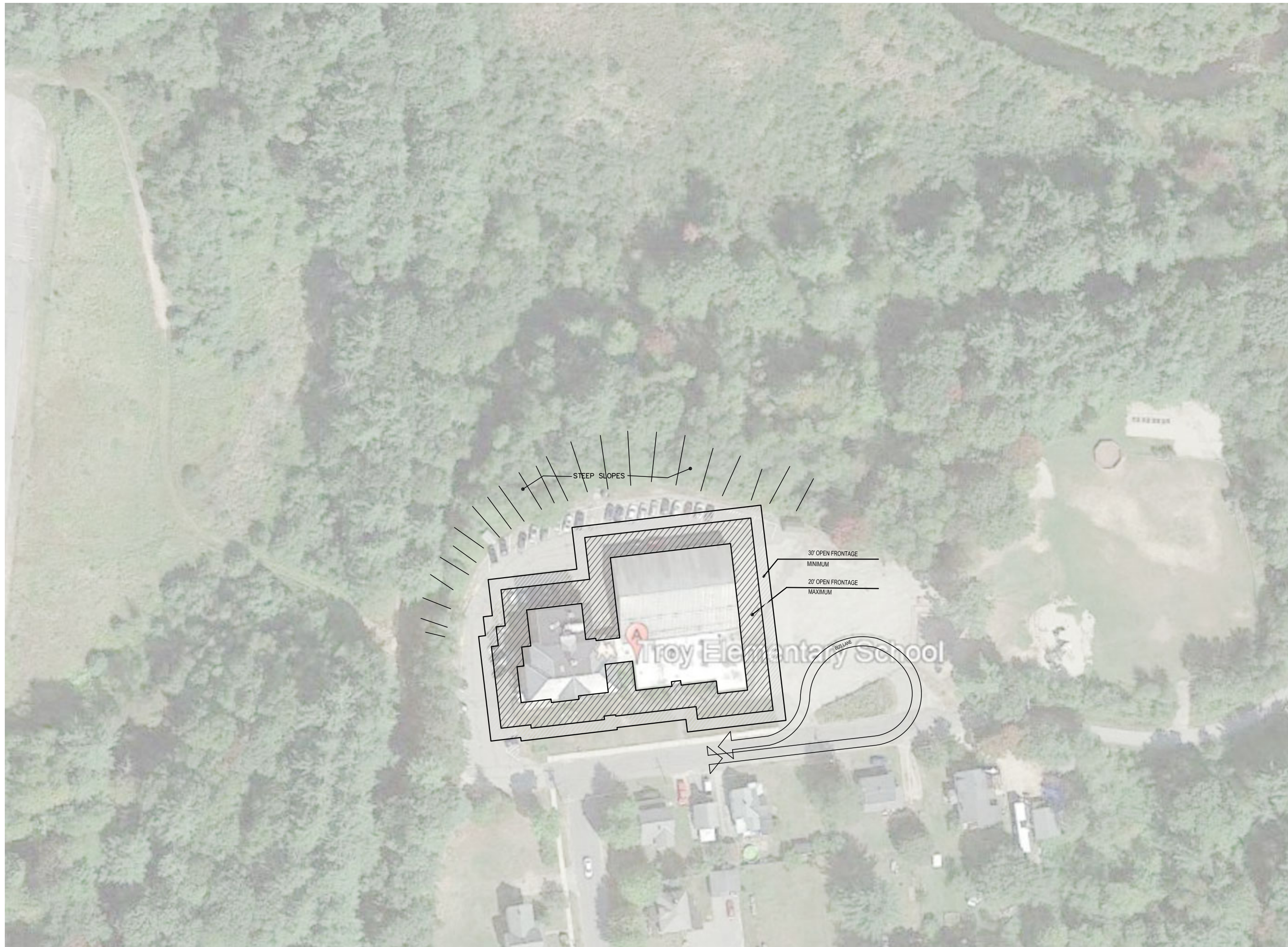
Typical Classroom in addition.



View of gymnasium



Main toilet facilities.



REVISIONS

KEY PLAN

NOTES

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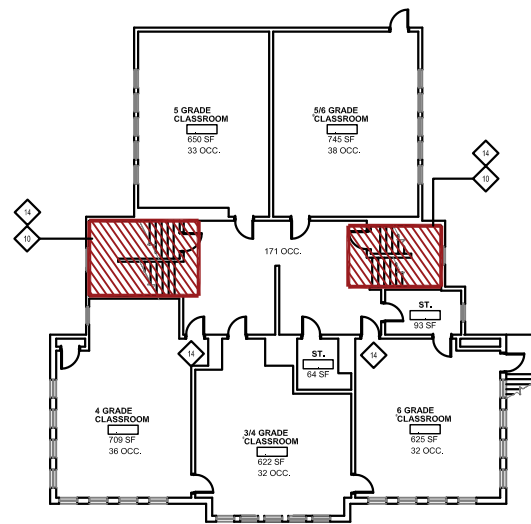


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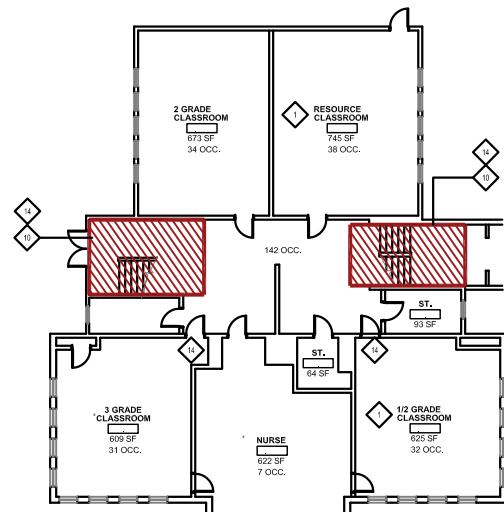
MONADNOCK REGIONAL SCHOOL DISTRICT
 ELEMENTARY SCHOOLS ASSESSMENT STUDY

TROY ELEMENTARY SCHOOL
 EXISTING SITE PLAN

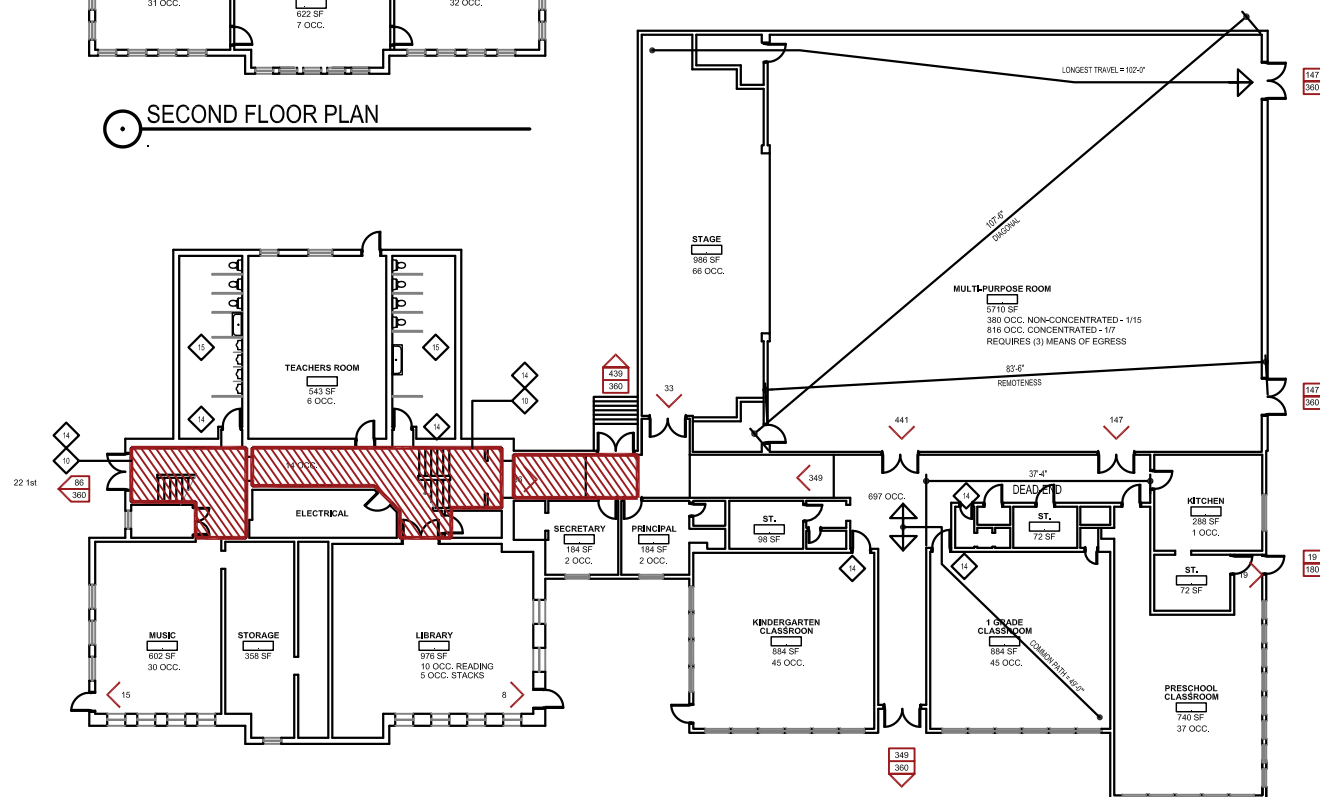
DATE : OCTOBER 31, 2019
 SCALE : AS NOTED



THIRD FLOOR PLAN



SECOND FLOOR PLAN



MAIN FLOOR PLAN

CODE NOTES	
1	PRESCHOOL THRU 1ST GRADE RESTRICTED TO LED
2	MINIMUM CORRIDOR WIDTH OF 6'-0" REQUIRED
3	TWO SEPARATE EXITS REQUIRED
4	DEAD-END CORRIDOR NOT TO EXCEED 50'-0"
5	COMMON PATH NOT TO EXCEED 100'-0"
6	ROOMS LARGER THAN 1000 SF REQUIRE 2 EXITS
7	DOORS CANNOT INTERFERE WITH CORRIDOR TRAVEL
8	TRAVEL DISTANCE TO EXIT CANNOT EXCEED 200'-0"
9	CORRIDORS ARE REQUIRED TO BE SMOKE RESISTANT
10	EXITS ARE REQUIRED TO BE FIRE RATED
11	ROOMS ARE REQUIRED TO BE FIRE RATED
12	MULTIPLE EXITS ARE REQUIRED TO BE REMOTE
13	OCCUPANT LOAD CANNOT EXCEED EGRESS WIDTH
14	ADA REQUIRES ACCESSIBLE ROUTE
15	ADA REQUIRES ACCESSIBLE FIXTURES

REVISIONS

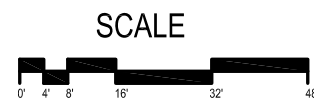
KEY PLAN

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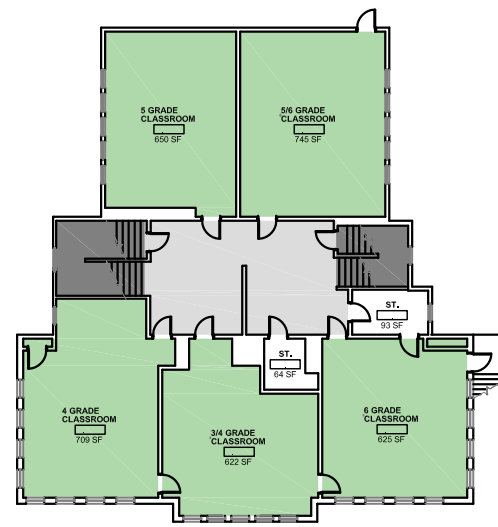


LEGEND	
	OCCUPANT LOAD AND EGRESS DIRECTION
	EXIT WITH OCCUPANT LOAD (ABOVE) CAPACITY (BELOW)
	REQUIRED FIRE RATED AREA
	LONGEST TRAVEL DISTANCE TO EXIT
	LONGEST COMMON PATH OF TRAVEL TO 2 MEANS OF EGRESS
	ASSEMBLY DIAGONAL DISTANCE
	ASSEMBLY EXIT REMOTENESS

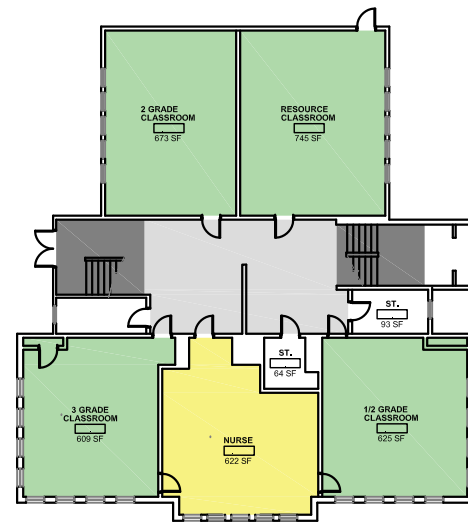
MONADNOCK REGIONAL SCHOOL DISTRICT
ELEMENTARY SCHOOLS ASSESSMENT STUDY
TROY ELEMENTARY SCHOOL
EXISTING CONDITIONS PLANS

DATE : OCTOBER 31, 2019
SCALE : AS NOTED

EX2



○ THIRD FLOOR PLAN



○ SECOND FLOOR PLAN



○ MAIN FLOOR PLAN

SCALE

0' 4' 8' 16' 32' 48'

LEGEND

- CORRIDORS
- STAIRS
- TOILETS
- CORE AREAS
- SPECIALS
- CLASSROOMS

REVISIONS

KEY PLAN

NOTES

CONSULTANTS



8 KEARSARGE STREET CONCORD, NH 03301
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MONADNOCK REGIONAL SCHOOL DISTRICT
 ELEMENTARY SCHOOLS ASSESSMENT STUDY
 CUTLER ELEMENTARY SCHOOL
 EXISTING CONDITIONS PLANS

DATE : OCTOBER 31, 2019
SCALE : AS NOTED

EX3

Troy Elementary School

General Conditions

BASIC INFORMATION

Location:	AREA	Building A	Building B	Building C	Total
44 School St Troy, NH 03465	1st Floor	5032	12712		17744
	2nd Floor	4966			4966
	3rd Floor	4966			4966
	Total	14964	12712		27676
	Stories	3	1		
	Height	45	24		
	Footprint	5032	12712		
	Perimeter	316	562.5		
	Const. Class	3b	3b		
	Building Type	SM	S1		
	Frontage min. 20'	290	488		
	Frontage min. 30'	290	488		
	Weighted Width	30.0	30.0	#DIV/0!	

APPLICABLE CODES

NEW HAMPSHIRE STATE BUILDING CODE

- 2015 EDITION INTERNATIONAL BUILDING CODE (IBC)
- 2015 EDITION INTERNATIONAL ENERGY CONSERVATION CODE (IECC)
- 2015 EDITION INTERNATIONAL EXISTING BUILDING CODE (IEBC)
- 2015 EDITION INTERNATIONAL MECHANICAL CODE (IMC)
- 2015 EDITION INTERNATIONAL PLUMBING CODE (IPC)
- 2017 EDITION NATIONAL ELECTRICAL CODE (NEC)

NEW HAMPSHIRE SAF-C 6000 BUILDING SAFETY CODE

- 2015 EDITION NFPA 1 UNIFORM FIRE CODE
- 2015 EDITION NFPA 101 LIFE SAFETY CODE

NEW HAMPSHIRE BARRIER FREE DESIGN CODE

- 2010 EDITION ADA STANDARDS FOR ACCESSIBLE DESIGN

NH DEPT OF EDUCATION STANDARDS

Approval of plan set by the State Fire Marshal required. Designs to meet the following codes:

State of NH Fire Code

2015 NFPA 101 - Life Safety Code

NH Code for Barrier Free Design and 2010 ADAAG when applicable

ANSI S12.60 Acoustical Performance Criteria, Design Requirements and Guidelines for Schools

Grade Level: Elementary (Elementary, Middle, High)
 Design Capacity: 200 students
 Core Capacity: 300 students

Max. Building Size:
 Max. Construction:

Minimum Size Standards

	Minimum Value	Preferred Total
Classrooms	36 s.f. per student	900 s.f.
Kindergartens	50 s.f. per student	1000 s.f.
Library	40 s.f. per student	1800 s.f.
Phys. Ed.	110 s.f. per student	700 s.f.
Office	60 s.f. per person	1200 s.f.
Nurse	1 cot per 200 stud.	300 s.f.

Table A

Troy Elementary School

NFPA 101 - Life Safety Code Review

BUILDING DATA

Use and Occupancy Classification

Primary Use	Accessory Use	Area by Use	Building A	Building B	Building C	Total
Educational			7581	2508		10089
Assembly				6696		6696
Business			1165	728		1893
Storage			314	170		484
Misc.			5904	540		6444
Total			14964	12712	0	27676

Mixed Use	No	
Construction Type	V	
Sprinklers	Yes	NFPA 13 30.3.5.2
Fire Alarm System	Yes	30.3.4.1.1

Refer to Code Plan for Use Area Locations.

OCCUPANT LOAD

Classification	7.3.1.2	Building A	Building B	Building C	Total
Educational					478
Classrooms	20sf/person	336	127		
Library (Reading)	50sf/person net	10			
Library (Stacks)	100sf/person	5			
Assembly					882
Non-Concentrate	15sf/person net				
Concentrated	7sf/person net		816		
Stage	15sf/person net		66		
Locker room	50sf/person				
Business					18
Offices	100sf/person	13	4		
Kitchen	200sf/ person		1		
Storage & Mech.	300sf/ person				
Total		364	1014	0	1378

Refer to Code Plan for occupancy load per room.

MEANS OF EGRESS

Location of PK, K and 1st Grade	LED	New Educational	Exist Educational	Provided	
Corridor Width	6'-0"	14.2.1.2	15.2.1.2	NON-COMPLIANT	1/2 classroom
Number of Exits	2	14.2.3.2	15.2.3.2	COMPLIANT	
Rooms Over 1000 sf	2	14.2.4	15.2.4	NON-COMPLIANT	Building A
Assembly over 500	2	14.2.5.4	15.2.5.4	COMPLIANT	
Dead End Corridor	3	7.4.1.2	7.4.1.2	COMPLIANT	
Common Path of Travel	50'	14.2.5.2	15.2.5.2	COMPLIANT	
Travel Distance to Exit	100'	14.2.5.3.2	15.2.5.3.2	COMPLIANT	
Windows for Rescue	200'	14.2.6.2	15.2.6.2	COMPLIANT	
	No	14.2.11.1.2(2)	15.2.11.1.2(2)	SPRINK. EXCEPT.	

Refer to Code Plan for Egress, Exit Access, Maximum Travel, Maximum Common Path and Maximum Dead End Corridor.

PROTECTION

	Hours		Hours
Exit Stairs	1	Hazardous Rooms	
Shafts	1	Boiler Room	SPRINKLER 15.3.2.1
Horizontal Assemblies	1	Storage Room	SPRINKLER 15.3.2.1
Exit Access Corridors	S 14.3.6(2)	Janitor Closet	SPRINKLER 15.3.2.1
Smoke Compartments	N/A 14.3.7.2(2)		

See Code Plan for locations of rated partitions.

INTERIOR FINISHES

Allowable Finishes	Class
Exits and Exit Passageways	A
Exit Access Corridors	B
Other Areas	C

Table B

Troy Elementary School

IBC - Code Review

BUILDING DATA

Use and Occupancy Classification

Building A	Primary Use	E
Fire Area #1	Accessory Use	A
	Accessory Use	B
	Mixed Use	No
	Construction Type	3b
	Sprinklers	Yes
	Building Type	S1

Number of Stories	3	
Height	45 LF	
Area	1st Floor	5032 SF
	2nd Floor	4966 SF
	3rd Floor	4966
Footprint	5032 LF	
Perimeter	316 LF	
Frontage	290 LF	
Weighted Width	30.0 LF	

This Fire Area Meet Code for Height

This Fire Area Within Allowable Area

Building B	Primary Use	A-3
Fire Area #2	Accessory Use	E
	Mixed Use	No
	Construction Type	5b
	Sprinklers	Yes
	Building Type	S1

Number of Stories	1	
Height	24.00 LF	
Area	First Floor	12712 SF
		0
		0
Footprint	12712 LF	
Perimeter	562.5 LF	
Frontage	488 LF	
Weighted Width	30 LF	

This Fire Area Meet Code for Height

This Fire Area Within Allowable Area

Building C	Primary Use	E
Fire Area #3	Accessory Use	
	Mixed Use	No
	Construction Type	5b
	Sprinklers	Yes
	Building Type	S1

Number of Stories	0	
Area Height		0 LF
	First Floor	0 SF
		0
		0
Footprint	0 LF	
Perimeter	0 LF	
Frontage	0 LF	
Weighted Width	#DIV/0! LF	

This Fire Area Meet Code for Height

This Fire Area Within Allowable Area

	Fire Area #1	Fire Area #2	Fire Area #3
Separated Uses	0	0	
Fire Alarm System	Yes	Yes	
Existing Building Alteration Level			1, 2, 3

CONSTRUCTION CLASSIFICATION

Table 601	Fire Area #1	Fire Area #2	Fire Area #3
Element	3b Rating	5b Rating	5b Rating
Primary Structural Frame	0	0	0
Bearing Walls	Exterior	0	0
	Interior	0	0
Non Bearing	Exterior	0	0
	Interior	0	0
Floors	0	0	0
Roofs	0	0	0

See Code Plan for locations of rated partitions.

PROTECTION

	Hours	Incidental Rooms	Hours
Exterior Walls	0	Table 508.2.5	
Firewalls	2	Boiler Room	1
Fire Barriers	1	Sprinkler Room	1
Shafts	1		
Fire Partitions	1		
Exit Stairs	1		
Horiz. Assemblies	1		
Exit Access	Smoke		

See Code Plan for locations of rated partitions.

INTERIOR FINISHES

Allowable Finishes	Table 803.9	Fire Area #1	Fire Area #2	Fire Area #3
Exits and Exit Passageways		B	B	B
Exit Access Corridors		C	C	C
Other Areas		C	C	C

OCCUPANT LOAD

Classification	1004.1.1	Building A	Building B	Building C	Total
Educational					351
Classrooms	20sf/person gross	336			
Library (Reading)	50sf/person net	10			
Library (Stacks)	100sf/person gross	5			
Assembly					882
Non-Concentrated	15sf/person net		0		
Concentrated	7sf/person net		816		
Stage	15sf/person net		66		
Locker room	50sf/person				
Business					14
Offices	100sf/person gross	13			
Kitchen	200sf/ person gross	0	1		
Storage & Mech.	300sf/ person	0			
TOTAL		364	883	0	1247

Refer to Code Plan for Egress, Exit Access, Maximum Travel , Maximum Common Path and Maximum Dead End Corridor.

MEANS OF EGRESS

		Required		Provided/Worst Case
Number of Exits	Under 49 occ.	1	1006.2.1	1
	Over 49 under 500	2	1006.2.1	2
	Over 500 under 100	3	1006.2.1.1	3
Common Path of Travel		75	Table 1006.2.1	46
Exit Access Travel Distance		250	Table 1017.2	141
Dead End Corridor		50	1020.4(2)	16

PLUMBING REQUIREMENTS

Primary Use	Classification	Required 2902.1				
		Water Closets	Lavatories	Showers	Drinking Fountains	Service Sink
Primary Use	E	8	8	-	4	1
Accessory Use	A				2	1
	Men	4	3	-		
	Women	7	3	-		
	B	1	1	-	1	1
		Provided				
Primary Use	Classification	Water Closets	Lavatories	Showers	Drinking Fountains	Service Sink
		8	6	1	0	0
Accessory Use	A				0	
	Men	1	1	-		
	Women	1	1	-		
	B	1	1	-	0	
		NON-COMPLIANT	NON-COMPLIANT	COMPLIANT	NON-COMPLIANT	NON-COMPLIANT

Uses are not subject to simultaneous occupancy so therefore fixtures can be shared between uses. This does require that toilet facilities in other parts of the building from the gymnasium be open when the gym is in use.

ENERGY CODE

Using Prescriptive Method for compliance		Required	Provided	
Roof	(Attic and Other)	R-30ci	COMPLIANT	Only in 1996 addition. NON-COMPLIANT elsewhere
Walls	(Wood Framed)	R-11.4ci	COMPLIANT	Only in 1996 addition. NON-COMPLIANT elsewhere
Below Grade		R-7.5ci	COMPLIANT	Only in 1996 addition. NON-COMPLIANT elsewhere
Heated Slabs		R-15 for 24"	N/A	
Doors		U-0.70	NON-COMPLIANT	Unknown
Windows		U-0.35	NON-COMPLIANT	Unknown

Table C

Troy Elementary School

Existing Building Needs

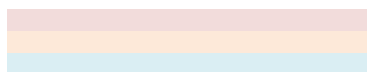
	1st Floor	2nd Floor	Total
Area	17,674	4,962	22,636
Perimeter	280	1,415	1,695

Cat	Item	Existing Descriptions	Corrective Measure	Cost / Priority			
				High	Medium	Low	Future
Site	1 Minimum Size Lot	The lot has acreage but much of it down a steep slope.					
	2 Water and Septic	Water and Sewer is on the town municipal system.					
	3 Bus/Car Separation	Car pick up is separated but parking is not.					
	4 Parking						
	5 Playground/Playfields						
	6 Site Features	The roof is easily accessible from the ground. Fencing has been installed but it is in disrepair. It is worth investigating.	Create a new means of preventing access to the school roof.		\$ 25,000		
	7 Grading/Drainage	Fairly new buried propane tanks.					
	8 Oil, Propane Tank Age/Condition						
	9 Roof Condition	Existing slate largely in good condition but some areas require attention. Gym roof in poor condition. The 1970 roof nearing the end of its life. Roof edges in some areas show decay and in need of paint.	Repair slate and add metal edging. Replace gym roof. Repair damaged roof edges, repaint trim. Replace 1970s roof.	\$ 100,000		\$ 65,000	
Envelope	10 Wall Condition (insulation and moisture protection)						
	11 Door Condition (energy efficiency and operation)						
	12 Window Condition (energy efficiency and operation)	Most of the windows are past their life expectancy.	Replace the windows.	\$ 300,000			
	13 Foundation Condition (insulation and moisture protection)	The existing stone foundation has some moisture issues. The area outside the administrative offices is partially below grade and has moisture issues.	Install new drainage and possibly regrade.	\$ 50,000			
Life Safety	14 K-2 location based on LED						
	15 Panic devices						
	16 Stair Details (Rise/Run, Railings)	Exterior fire escape stairs are in disrepair and not code compliant.	Replace steel platforms and stairs.		\$ 50,000		
	17 Areas of Refuge						
	18 Capacity of Means of Egress						
	19 Corridor Width						
	20 Number of Exits						
	21 Dead-end Corridors						
	22 Exits through Intervening Rooms						
	23 Door Arrangement						
Building Code	24 Travel Distance						
	25 Means of Escape						
	26 Protection of Vertical Openings	Original building was not designed to have the stairs separated. Retrofits have been compromised and themselves do not meet code.	Investigate ways to reconfigure for better egress and fire separation.		\$ 60,000		
	27 Protection of Hazards						
	28 Protection of Corridors						
	29 Smoke Compartments						
	30 Fire Alarm, Emergency lights and Exit lighting	The main fire alarm panel is new.					
Structural	31 Furnishings, Decorations and Personal Effects in the Corridor						
	32 Height and Area Limitations						
	33 Construction Classification						
Structural	34 Fire Rated Construction						
	35 Sprinklers	The building has an automatic sprinkler system.					
	36 Fire Protection						
	37 Snow Load Capacity						
Structural	38 Wall Condition (seismic capacity, cracks or deflection)	Canopies show structural damage.	Rebuild canopies.		\$ 30,000		
	39 Floor Load Capacity						
Accessibility	40 Foundation Condition (cracks or rot)						
	41 Parking	None.					
	42 Building Access	The building Access is through a side door.	Build a new front entrance that is handicap accessible.			\$ 250,000	
	43 Accessible Route	The accessible route through the building is maintained through a stair lift. Some classroom doors do not have proper clearances.	Configure new entrance with elevator and connection to all levels.			\$ 750,000	
	44 Clearances						
	45 Door Hardware						
	46 Stair Details						
	47 Toilet Facilities	No toilet facilities in the building are fully handicap accessible.	Renovate toilet room to bring into full compliance.		\$ 175,000		
	48 Signage						
Indoor Environmental Quality	49 Elevator	No elevator exists. Current accessibility relies on a stair lift.	Install elevator.			\$ 175,000	
	50 Ventilation	Ventilation and cooling is minimal.	Upgrade HVAC.	\$ 350,000			
	51 Thermal Control	Control system is archaic.	Upgrade to digital controls.		\$ 150,000		
	52 Moisture / Mold						
	53 Lighting Quality	The lighting appears to be currently adequate.					
Build. Services	54 Acoustics	Some issues with noise between classrooms.	Add insulation in walls.			\$ 20,000	
	55 Sanitation						
	56 Boiler Condition and Distribution	The boiler is in relatively good condition.					
	57 Water Supply						
	58 Plumbing / Fixture Count	Some fixtures are archaic.	Replace old toilet fixtures.				
	59 Kitchen Equipment	The kitchen is considerably undersized.	Upgrade and expand the kitchen.			\$ 250,000	
	60 Main Electrical Service	Main panels are about 15 years old and in good condition.					
	61 Generator	No generator.					
	62 Power Distribution	Outlets are aging and quantity low for technology.	Upgrade outlets.		\$ 22,000		
	63 Lighting Efficiency	Lighting is older and energy inefficient.	Replace with LED lights.			\$ 225,000	
Interior	64 Site lighting	???	Add LED site lights for safety and security.			\$ 20,000	
	65 Roof Drains						
	66 Phone, Intercom, Security	The phone and intercom are aging.	Replace phone and intercom with an integrated VOIP system.			\$ 25,000	
	67 Ceilings	The gymnasium has a type of ceiling that is hard to replace and over time has become damaged. Ceilings elsewhere are also in poor condition.	Replace gymnasium ceiling. Replace ceilings in entire building.		\$ 60,000	\$ 90,000	
	68 Walls	Walls in the oldest part are lath and plaster.	Replace plaster walls with gypsum board.			\$ 25,000	
	69 Floors	The flooring in the original building shows wear. Other structural issues may also exist.	Replace worn out flooring in original building.	\$ 100,000			
	70 Doors						
Security and Safety	71 Cabinetry	Most classrooms do not have cabinets.	Add cabinets to match district standard.		\$ 56,000		
	72 Fixed Equipment						
	73 Visual Display Boards	The visual display board are aging.	Change boards that are in poor condition and add smart TV's to match district standard.		\$ 21,000		
	74 Lock-down of public areas	The gymnasium can be separated from most but not all classrooms.	Limit public use or create separation.				
	75 Secure Visitor Check-in	The current main entrance is close to main office but not secure from the corridor.	Create new vestibule that is locked with a direct window to the main office.	\$ 120,000			
Miscellaneous	76 Technology	School has cameras.					
	77 Physical Hazards						
	78 Hazardous Materials						
	79 Visibility	The approach and parking is not visible from the main ?? office.					
	80						
81							
82							
83							
84							
85							

\$ 1,020,000 \$ 649,000 \$ 1,895,000 \$ -

Total Renovations \$ 3,564,000

TTG Study Recommendations
Changes to TTG Study
Barker Architects Recommendations



Value of Existing \$ 178 \$ 4,029,208 \$ 1,007,302 \$ 2,417,525
Renovation Minimum \$ 178 \$ 4,029,208 \$ 1,007,302 \$ 2,417,525
Renovation Maximum \$ 178 \$ 4,029,208 \$ 1,007,302 \$ 2,417,525
State Funding Thresholds \$ 178 \$ 4,029,208 \$ 1,007,302 \$ 2,417,525

Table D

Troy Elementary School

Curriculum Worksheet

Design Capacity	200
Core Capacity (Theoretical Max.)	300
Periods Per Day	6
Number of grades (include K)	7

Subject	Avg.		Max.		Teaching Stations	
	Students/ grade	Avg. Size	Students/ grade	Max Size		
Pre-Kindergarten	9	16	18	18	1.0	
Kindergarten (1)	27	16	36	18	2.0	
General Classrooms						
1 Grade Classrooms	27	18	40	20	2.0	
2 Grade Classrooms	27	18	40	20	2.0	
3 Grade Classrooms	27	20	44	22	2.0	
4 Grade Classrooms	27	20	44	22	2.0	
5 Grade Classrooms	27	22	48	24	2.0	
6 Grade Classrooms	27	22	48	24	2.0	
General Classroom					Total	12.0

	% enrolled	Total	Max Size	Meetings / Week	Required Stations
Special Ed. /Specialists (2)	20%	60	6	10	4.0
ACES					
Title I					
OT / PT					
Speech					
Reading					
Regular Ed Special Rooms					
Science					
Art	100%	300	25	1	1.0
Music	100%	300	25	1	0.0
Phys. Ed.	100%	300	25	2	1.0

(3)

1 Kindergarten is full day.

Actual Special Ed and Specialists required spaces varies considerably from school to school.

2 Socialists include regular ed small group instruction. Above calculation is solely for computing purposes. Required spaces should be base on actual programs.

3 Gymnasium to be designed for 2 teachings stations simultaneously.

4 Multi-Age classrooms employed to create more efficient class sizes.

Table E

Barker Architects, PLLC

11/17/2019

Troy Elementary School

Space Needs Worksheet

Design Capacity 200
Core Capacity 300

ELEMENT	DESIGN			EXISTING				COMMENT	
	#	SIZE	TOTAL	#	SIZE	TOTAL			
EDUCATIONAL SPACES	Pre-Kindergarten	1	1000	1000				0%	
	Kindergarten	2	1000	2000	2	812	1624	81%	
	Classrooms	12	900	10800	9	682	6142	57%	Most classrooms are considerably undersized.
	Art	1	1000	1000	1	602	602	60%	
	Music								
	Special Ed. /Specialists	4	360	1440	1	745	745	52%	Specialists are in regular education classrooms that have been converted.
CORE SPACES	Phys Ed			5600			5710	102%	Kitchen very undersized. Library undersized and not located centrally.
	Food Service								
	Caf. / Multi-Purpose Rm			1500			0	0%	
	Kitchen			700			360	51%	
	Assembly			1000			986	99%	
	Library			1800			976	54%	
	Stacks	1	1400						
	Computer	1	400						
	Offices			1200			1533	128%	
	Admin./Guid.		900		368				
	Faculty / Work		0		543				
	Nurse		300		622				
	Subtotal			28040			18678		
Misc. -Circ, Mech, Toilets, Janitor Storage		40%	11216	48%	8920			Existing has higher net:gross ratio due to functional obsolescence	

Totals

39256

27598

Sq. Ft. / Student (Design Cap.)
Sq. Ft. / Student (Core Cap.)

196
131

138
92

Table F

Barker Architects, PLLC

11/17/2019