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**Architects**

*NOT Changes*

*What can you do  
what's feasible  
certainly use baseline code.*

## Mantua Township Building Assessment

(For the building formerly known as  
Mantua Center Elementary School)

January 14, 2005



*Recd 9/1/05*

## Mantua Township Building Assessment

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## Mantua Township Building Assessment

### Charge of this report

The purpose of this report is to analyze proposed new uses of the existing building (formerly known as Mantua Center Elementary School) located at State Route 82 in Mantua Center relative to the Ohio Building Code (OBC). This code is the governing building code in Portage County. The intended stated uses of the building are:

Township Civic Center and meeting space  
Township business office  
Leased space to a Day Care center

This report is intended to provide an overview of the building code and how it relates to the proposed new uses. This is not an exhaustive study of all building code requirements. A more detailed analysis of code requirements will be required and can be done only after the new uses are finally determined with certainty and any other renovations either required by the code or desired by the Owners are determined.

At the end of this report are recommendations about which new uses in the building would be easier to accomplish from a Building Code viewpoint. This may help in determining subsequent building renovations.

This report does not address any use of the modular trailers that are on the property or the presence or absence of asbestos or other hazardous materials such as lead based paint. It is the Owner's responsibility to investigate the presence of these items with other qualified professionals and take the appropriate actions.

### Description of the existing building

The existing building was constructed in two portions: the original building, built in approximately 1914 and an addition to the west, built some time in the mid 1960's.

The original building is two and one half stories tall and constructed of masonry bearing walls, concrete floors and roof. A steel trussed roof was added recently (this information was obtained through Mantua Township Trustee Grimm) with plywood roof sheathing and asphalt or fiberglass shingles. The lowest level is approximately one half below adjacent grade with entries at the rear (north). These entries are at grade, but connected to both the lowest level and the next level by a flight of stairs. The main level or the second level is above grade and accessed by stairs in the front (south) of the building. There

are two interior stairwells connecting all of the floors. Please see attached referenced drawings and photos.

The addition is one story, constructed of masonry bearing walls, concrete slab on grade and steel roof structure with a flat roof. This portion of the building is lower than the main level of the original building and has grade entries of one or two steps. Please see attached referenced drawings and photos.

### Description of most recent uses of building

The most recent probable uses of the building were for education (classrooms etc.), assembly (gymnasium, lunch etc.) and business (school offices). The attached drawings delineate the probable distribution of these uses when the building closed.

### Description of uses as defined by the Ohio Building Code

This building falls under the jurisdiction of the Ohio Building Code (the State building code in Ohio), which is administered by the Portage County Building Department. The Ohio Building Code (OBC) addresses existing buildings in the following manner:

1. If a building is being renovated and the uses of the building are not changed, then any new construction must be accomplished according to code and the remainder of the building does not have to be brought up to the current requirements of the code. This does not apply to accessibility issues, which will be discussed in a different part of this report.
2. If a building is being renovated and any of the existing uses of the building change, the entire building must be brought up to the standards of current code requirements. This does not apply to accessibility issues, which will be discussed in a different part of this report.

In this building the existing Use Groups, as defined by the OBC, are E, education, A-3, assembly, and B, business. These uses coexist in the building without the presence of any fire separations between occupancies. Therefore, the existing building is classified under all three of these Use Groups as being non-separated uses.

The Ohio Building Code further classifies buildings by Construction Type. The Construction Type of this building is Type IIB, Noncombustible, Unprotected. Using the Use Group and the Construction Classification, the code limits the number of stories and the area per floor. For this building the maximum height and stories and the allowable areas are as follows:

|               |                                    |
|---------------|------------------------------------|
| A-3, Assembly | 2 stories, 55', 9500sf per floor   |
| B, Business   | 4 stories, 55', 23,000sf per floor |

E, Education

2 Stories, 55', 14,500sf per floor

Since this building contains multiple occupancies, non-separated, then we must use the most stringent numbers from above or: 2 stories, 55', 9500 square feet as the allowable height and area. The existing building is 3 stories, as defined by OBC, and 34 feet high and 9,372 square feet on the first floor, 4,812 square feet in the basement, and 4,440 on the second floor. However, since the building exists and, if the uses do not change, the building will be permitted to exist unchanged, even though it does not meet the current code requirements for number of stories. If the building changes use(s), then these discrepancies must be addressed.

### Certificate of Occupancy

In order for the above uses to be valid in the eyes of the Building Department, there must be a Certificate of Occupancy. This certificate may or may not exist. Given the age of the building, it is probable that there is no certificate of Occupancy. In fact, at one time schools were exempt from needing one. If the certificate does not exist, the Building Department will consider any use a new use. 7

### Description of intended uses

The proposed new Uses of the building as defined by the OBC are as follows:

|               |  |
|---------------|--|
| A-3, Assembly | Meeting room, senior center if all participants are ambulatory, meals etc.   |
| B, Business   | Township offices   |
| and           |  |
| E, Education  | Daycare if there is more than five children older than 2 ½ years old <u>or</u> more than five and less than 100 children less than 2 ½ years old and there is direct grade access from each room. Since there is no direct grade access to any level in the three-story portion of the building, this precludes using any part of the original building for daycare of children less than 2 ½ years old. |

These uses must be in the same proportion as the existing proportion uses, that is, as shown in the previous Drawing showing existing uses. Any new

assembly can only be in the current assembly, any new business can only be in the current business and so forth. This would seem to work only for the assembly area and the daycare area. There is actually more daycare (E, Education) area than needed. From the stated goals for township offices, this does not seem practical as there would seem to be a desire for more office area than currently exists. If the proportion is changed, then the code considers that a change of use, then the entire building must be brought up to the current standards of the code. This would, in all likelihood, be economically infeasible. Again, this is true only if there is an existing Certificate of Occupancy agreeing with the above assumed uses. Absent the certificate of use, the entire building must be brought up to code.

### Accessibility

Accessibility is addressed in the Ohio Building Code for existing buildings. Following is a list of requirements for accessibility in existing buildings.

1. Provide the required number of accessible parking spaces. The required number is based upon one accessible space per 25 parking spaces up to 100 spaces and one per 50 spaces after that. At least one accessible space must be van accessible.
2. Provide an accessible path from the accessible parking spaces to the entry to the building. An accessible path is basically a very flat and hard surface.
3. Provide at least one accessible entry to the building. (No steps, ramp only.)
4. Provide an accessible path to restrooms.
5. Provide accessible restrooms for each sex.
6. Provide an accessible path from the accessible entry to each primary function in the building. This would include each of the major uses in the building. This would also include the requirement to install a passenger elevator in the 3 story portion of the building.
7. Provide an accessible entry to each function.

Where it is technically infeasible to comply with the above requirements, the code states that accessibility must be provided to the maximum extent possible. This is a judgment call by the building official. The Portage County Building department has historically had a very strict interpretation on the definition of technically infeasible. That definition as defined by the code, reads as follows;

*“ Means, with respect to the alteration of a building or a facility, that it has little likelihood of being accomplished because existing structural conditions would require removing or altering a load-bearing member which is essential part of the structural frame: or because existing physical or site constraints prohibit*

*modification or addition of elements, spaces, or features which are in full and strict compliance with the minimum requirements for new construction and which are necessary to provide accessibility”*

### Other Major Code Requirements for each Use Group

#### Fire Suppression System (sprinkler system):

A fire suppression system will be required for the A-3 Use Group. When the fire area exceeds 12,000 SF, a fire suppression system is required. A fire area is the aggregate floor area between exterior walls or fire walls and since there are no fire walls in the building, the aggregate area is the entire building, which totals approximately 18,624 SF. This same requirement is applicable for an E Use Group where occupancy is below the grade exit discharge (the classrooms in the basement). Since there is no public water system available at this building it would be cost prohibitive to install a fire suppression system.

#### Manual Fire Alarm System:

A manual fire alarm system is required in all E Use Groups, in A-3 Use Groups with more than 300 occupants (not likely in your case), and in B Use Groups with more than 500 occupants (again, not likely in your case). And, as before, with the mixed Use Groups in the building without fire separations, the entire building would be subject to these requirements. The manual fire alarm system must meet the current requirements of the code.

#### Other code requirements:

There are many other code requirements too numerous to mention. Many of these requirements are specific to the work being accomplished. Until the exact configuration of uses is known in the building, these requirements cannot be listed with any accuracy.

### Conclusion

It appears that the building cannot be used for the desired new uses without significant renovation. This is dictated both by the allowable height and the accessibility requirements. Use Group B (office) is the only allowable use relative to the existing three story height. Both Education (day care) and Assembly (meeting rooms) are restricted to two stories. The E Use Group requires a manual fire alarm system and the A-3 Use Group requires a fire suppression system. Again, these requirements are a result of both the intended use of the building and the existing construction classification. Any use of the

three story portion of the building would require the installation of a passenger elevator as well as other renovations for both the general requirements of the code as well as accessibility. The one story portion of the building is more easily used for any occupancy, simply because it is only one story and it is newer. However, using it would require that the three story portion be completely fire separated from the one story portion.

### Recommendations

As stated above, one solution would be to separate the one story portion from the three story portion. This can be accomplished by installing a fire wall between the two portions, so that in the eyes of the building code, the two portions would become two completely separate buildings. Please see the attached drawing indicating the location of the fire wall. This could not be done without some construction difficulties, but I believe it is possible. The width of openings in fire walls is limited to 25% of the length of the wall. The wall at this location is nine feet long and therefore, any opening would only be slightly larger than two feet, which is not an acceptable door width. The fire wall would have no openings. With this wall in place, the one story portion could then be used for any or all of the desired uses. Renovations would still be required. The restrooms must become accessible, entries must have ramps installed, and a manual fire alarm system would be needed, but other than that most other renovations would be for whatever results were desired for the uses. Because there are now two buildings in the eyes of the code, the threshold for the fire suppression system is reduced to the size of the one story building and no fire suppression is required. This would also allow time to consider the future of the three story portion of the building or time to raise funds for the more involved renovations. Because of the three stories in the other portion of the building, it would be easier from a code standpoint to use that portion of the building for the B- business, use. An elevator would still be required, as would accessible restrooms and some fire ratings in corridors and stairwells. But this would seem to be the best use of the three story building. Again, other code requirements would be applicable depending upon the exact renovations.

It may also be practical to install a fire barrier wall in lieu of a firewall in the same indicated location. A fire barrier wall has less stringent requirements than a firewall and it should be possible to install a fire-protected opening (fire door) in the wall. The section of the code that allows the installation of the fire barrier wall allows for separated occupancies using the fire barrier wall and a ratio of the floor area of the use to the allowable floor area of the use. The ratios of all of the uses added together must be less than one. This will ultimately depend upon the exact configuration of the uses in the building, but will certainly mean that only the A-3 use and the E use can be in the one story portion of the building and the B use must be in the three-story portion. This does not preclude the above requirements for accessibility and other code requirements for the individual Use Groups will also be required. Also, as stated above, a fire alarm



system is required in the one story portion, but no fire suppression system is required. This will also mean the entire building must be renovated at one time.

Some Other Considerations:

New Building Code:

In March of 2005, a new version of the Ohio Building Code will be issued. Historically when new versions are issued, the changes are minor as opposed to broad and sweeping. I do not know the scope of these changes. The Portage County Building Department has also not seen any information on the new code. Some of these changes may affect the above information. As soon as these are available, I will report to you any modifications to the above.

Ohio Building Code Appeals:

Any individual requirement of the Ohio Building code is appealable. The local building official must first review the proposed renovations and issue an adjudication order. You may then appeal that order. The appeal is done through the State of Ohio Board of Building Appeals. They meet approximately once a month in North Canton. It has been my experience that the appeal can be granted if the local building official and/or the local fire official support your case for appeal.

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PLANNING DESIGN FOR

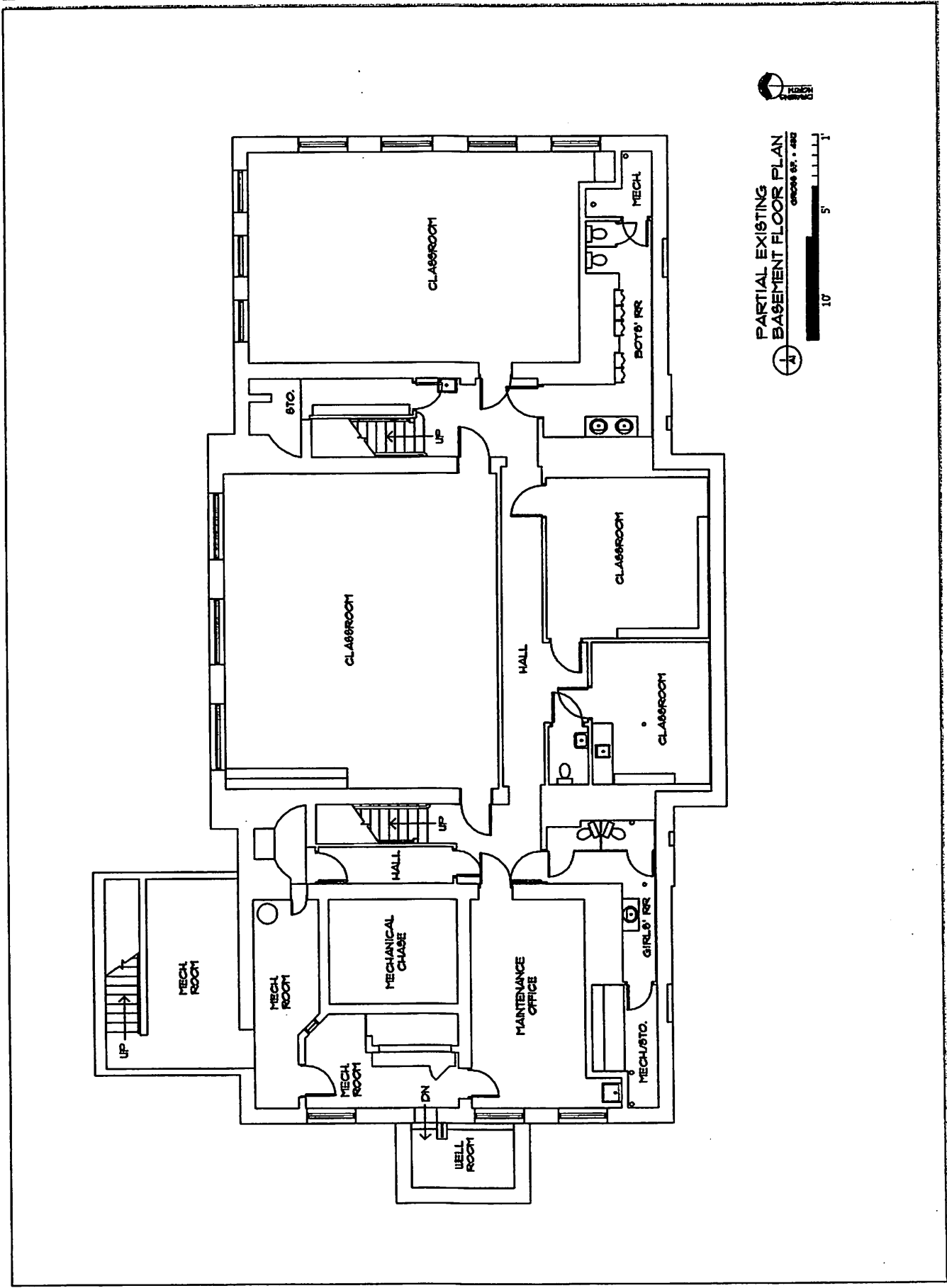
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PROJECT: 0-00  
DATE: 08/94  
SCALE: NOTED  
DRAWN: JF  
CHECKED: JLS

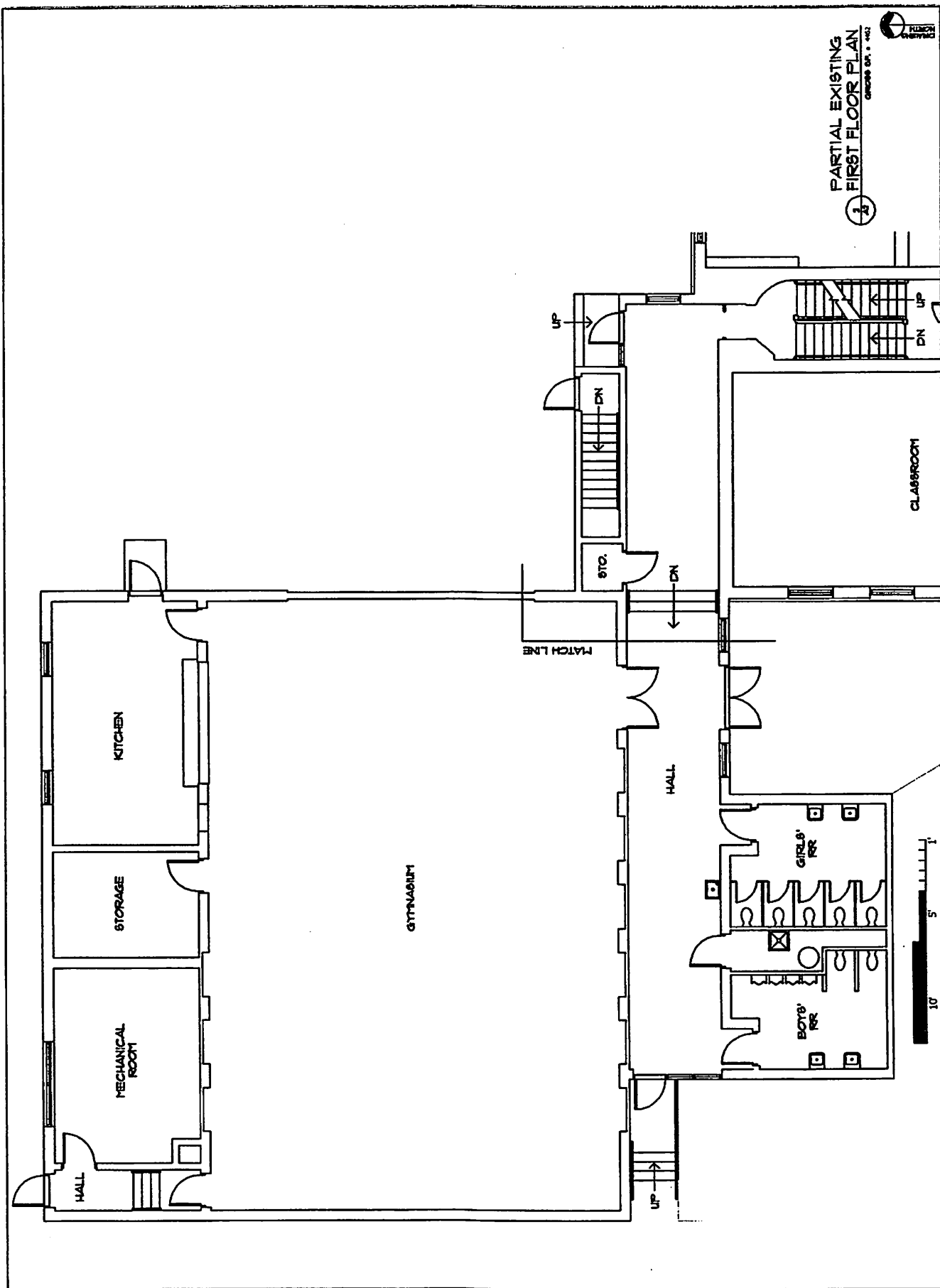
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PARTIAL EXISTING  
BASEMENT FLOOR PLAN  
CHECKED BY: JLS





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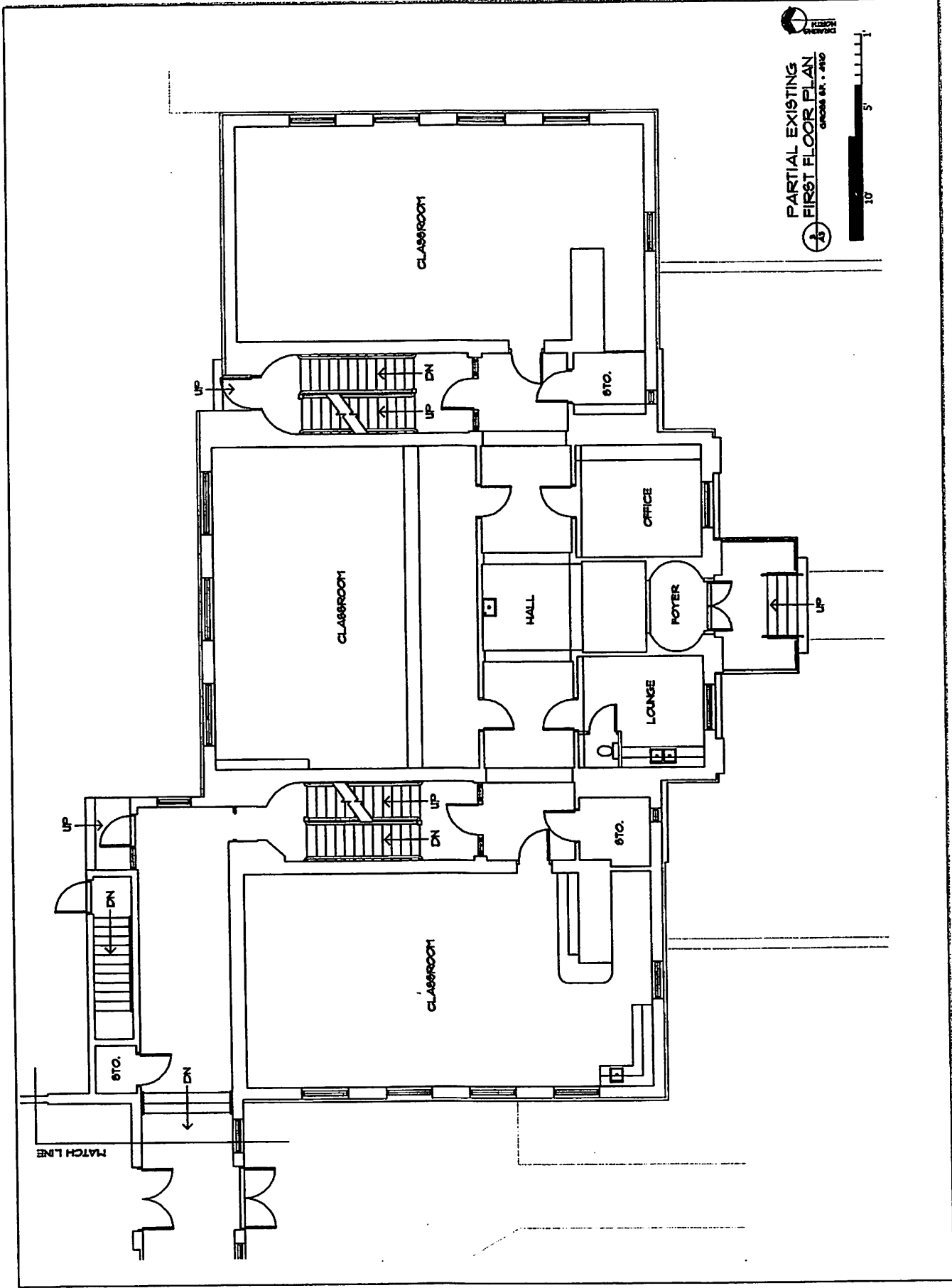
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DATE: 11/11/00  
SCALE: NOTED  
DRAWN: J.S.  
CHECKED: J.S.

**A3**  
SHEET NO.



**PARTIAL EXISTING  
FIRST FLOOR PLAN**  
GRADE 01' - 00.0



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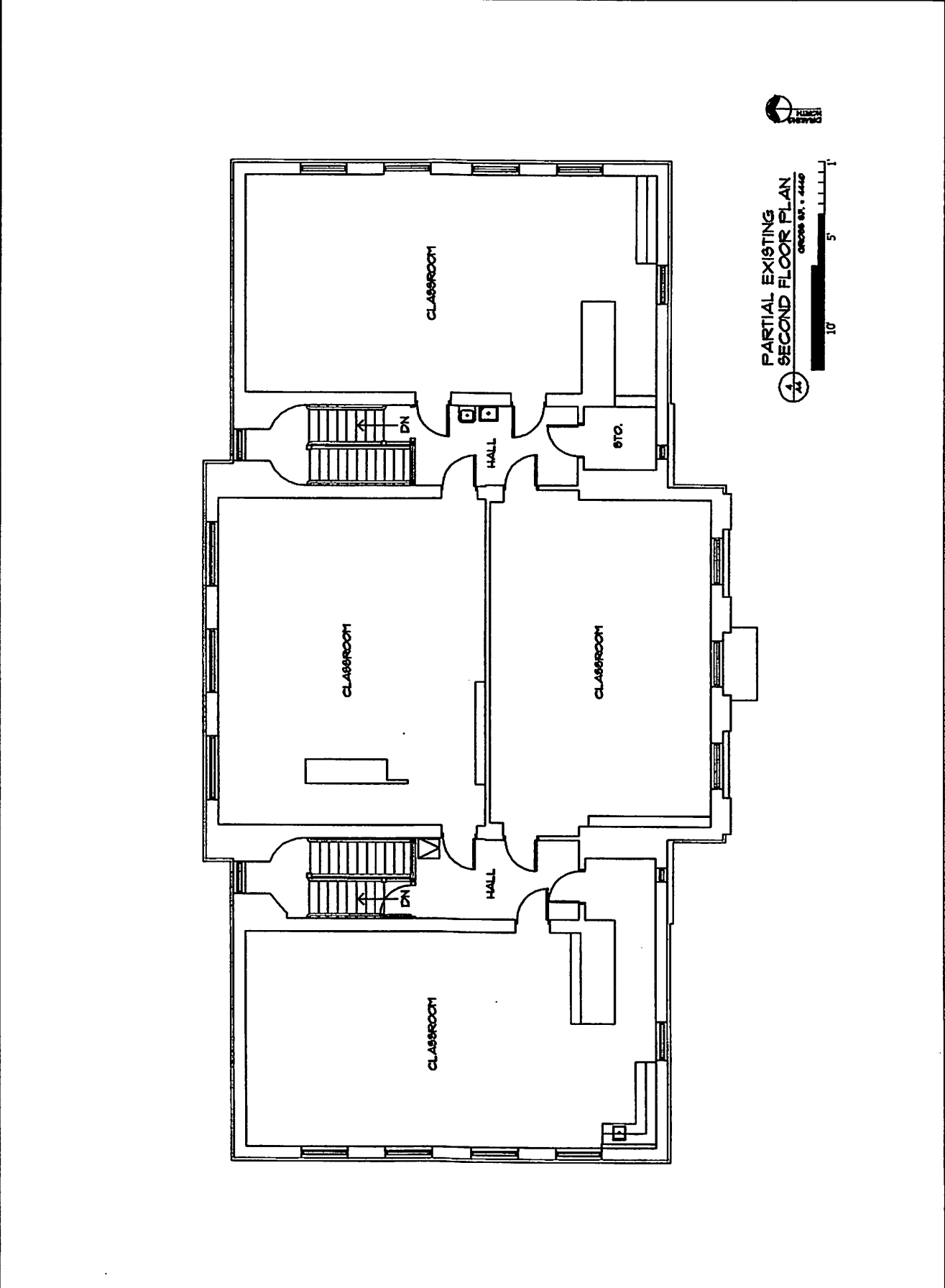
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A4  
1/4" = 1'-0"



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SECOND FLOOR PLAN  
01/08/04 - 4440

A4



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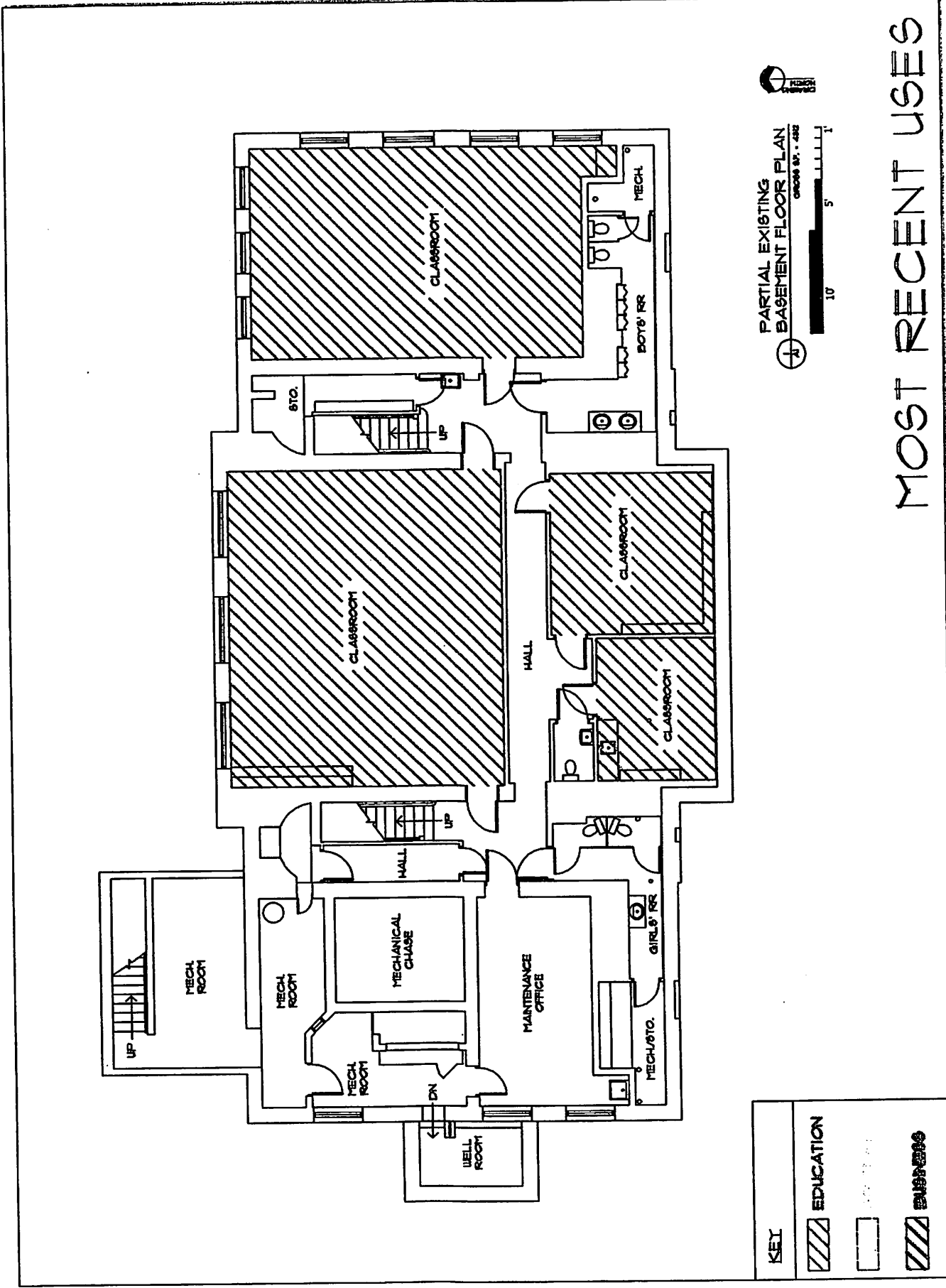
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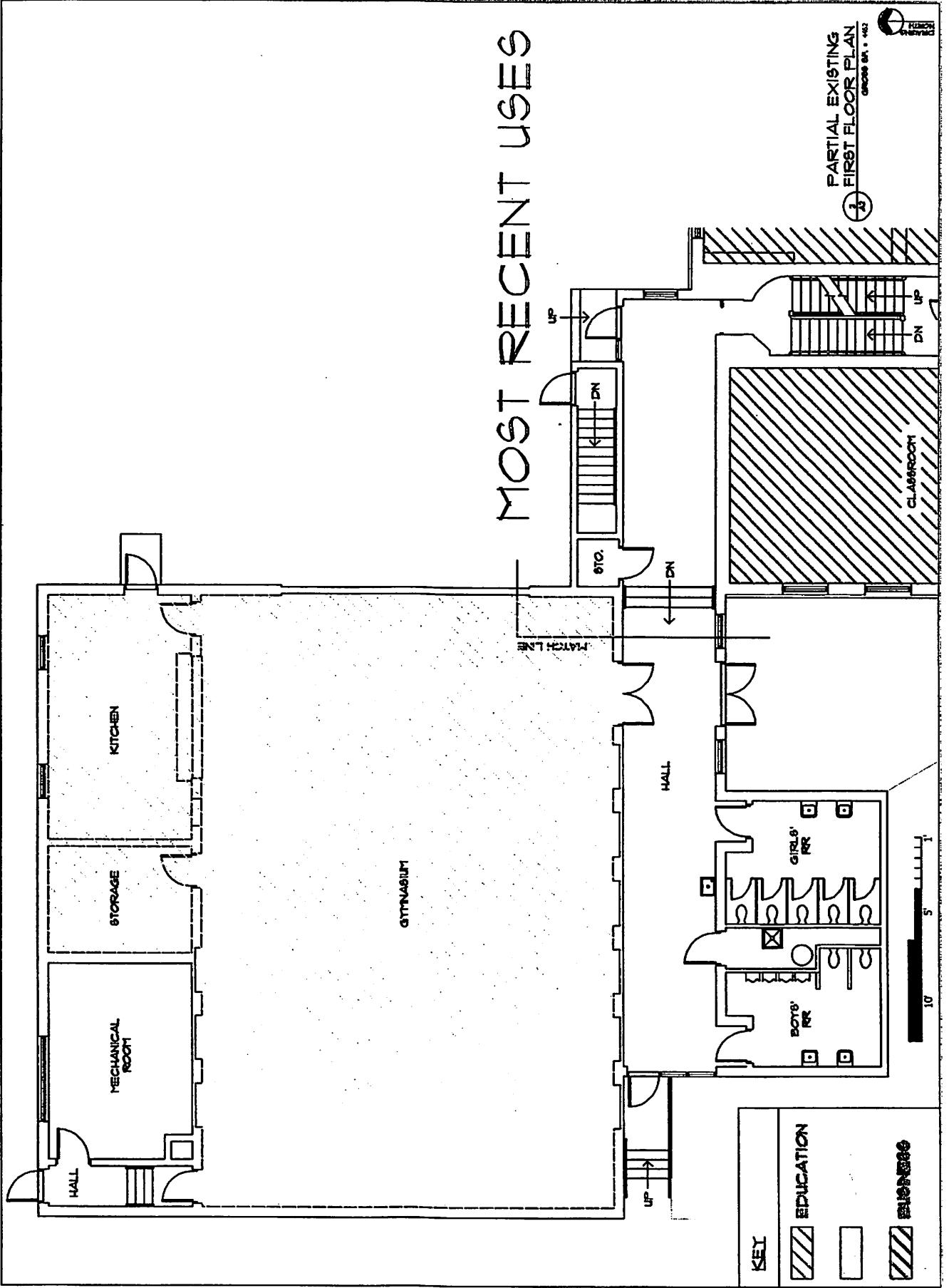
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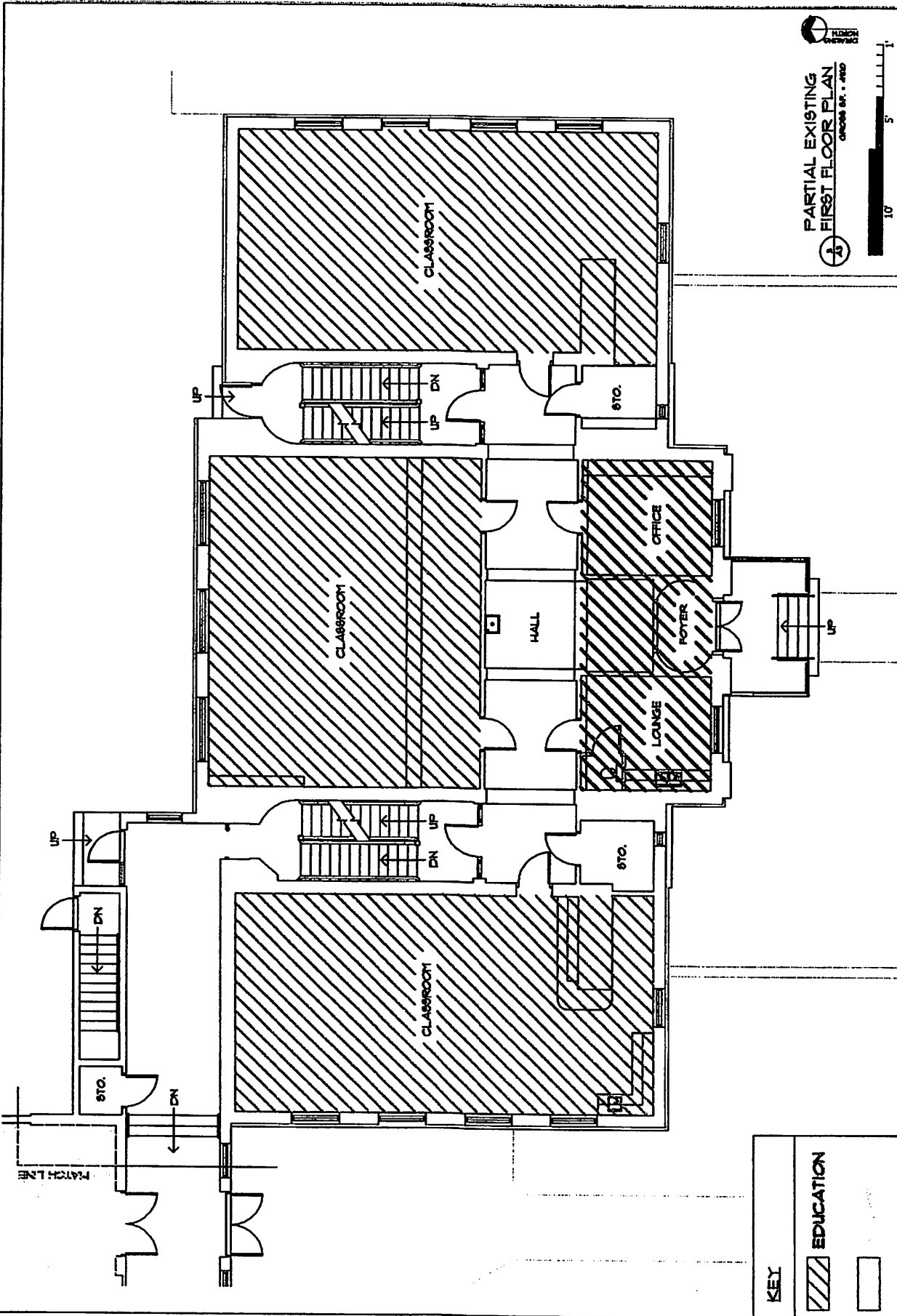
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A3  
FIRST FLOOR PLAN



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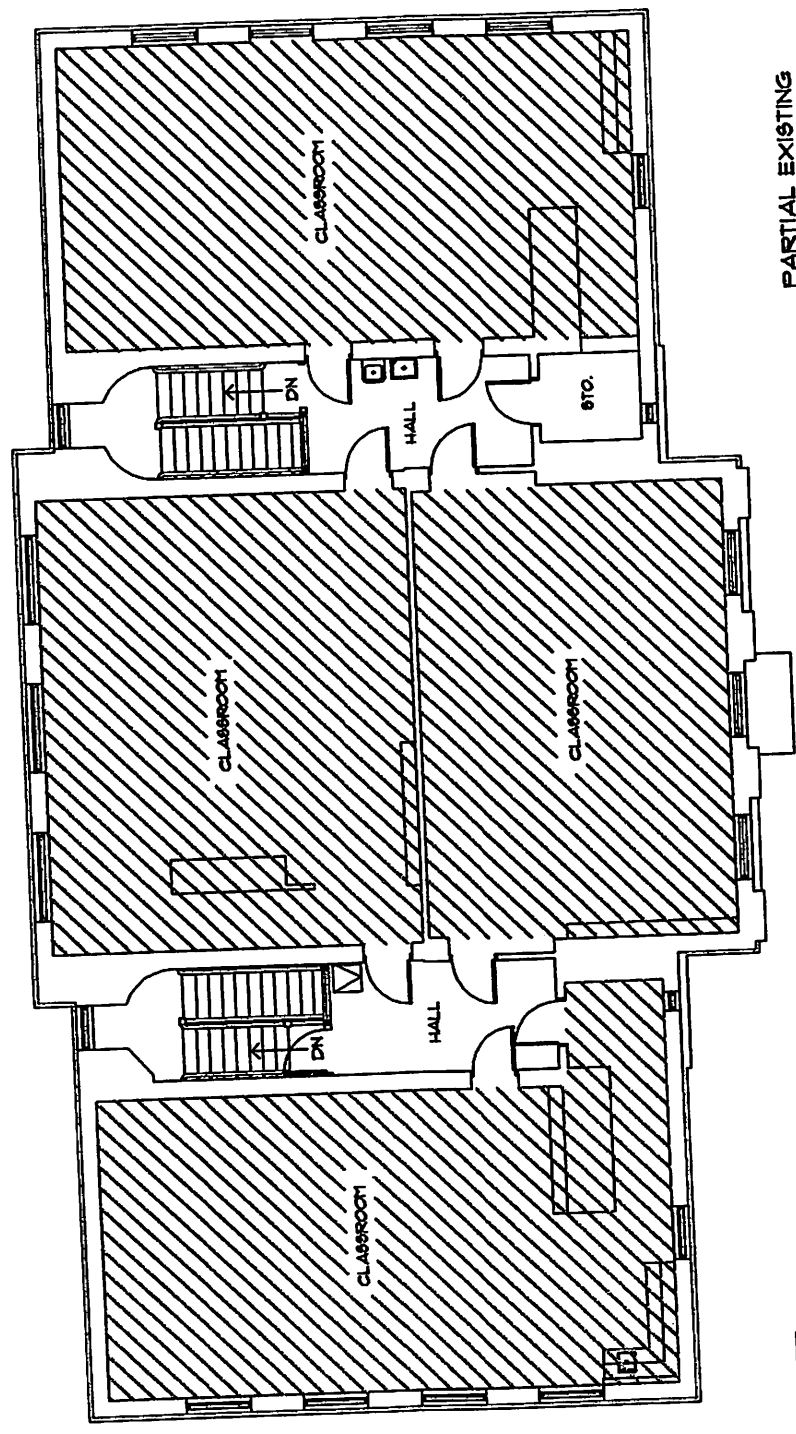
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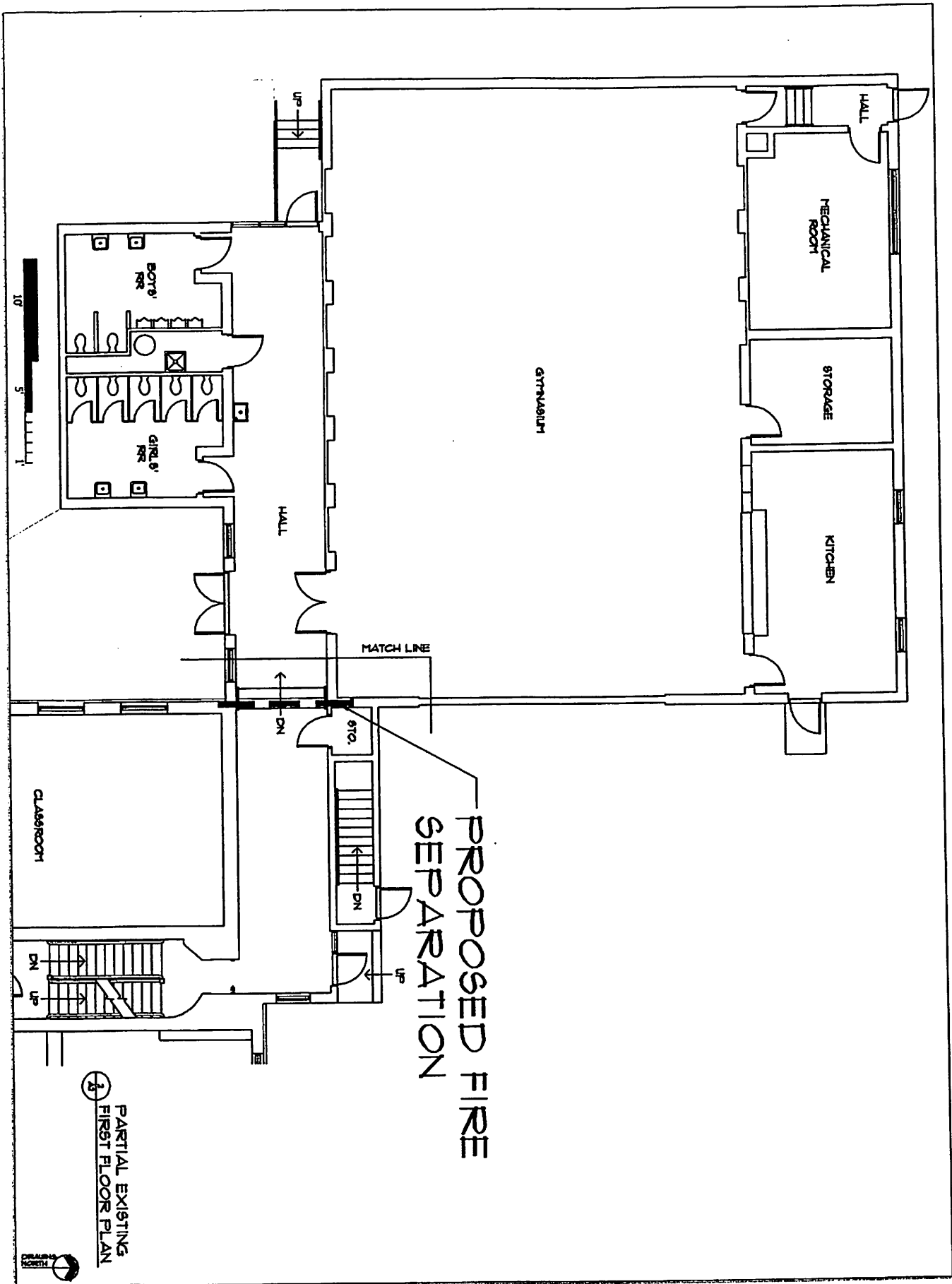
A4



  
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 SECOND FLOOR PLAN  
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**PROPOSED FIRE SEPARATION**

3 PARTIAL EXISTING FIRST FLOOR PLAN



**FS**

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...  
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**L. Sommers, AIA**  
**chitects**  
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