

VOCATIONAL SCHOOL.

C. Donabadian.

1953

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SCHOOL OF ENGINEERING  
PROJECT REPORT

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AMERICAN UNIVERSITY OF BEIRUT

E Psn 137: C. 1

SCHOOL OF ENGINEERING - A.U.B.

PROJECT : VOCATIONAL SCHOOL

DESIGNED BY CHRIS. DONABEDIAN

DATE : MAY 1953.

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## Introduction:

Vocational education has reference to training for useful employment. It may be given to boys and girls who having selected a vocation, desire preparation for entering it as trained workers; to youths who, having already entered employment, seek greater efficiency in that employment, and to adult workers established in their trade or occupation who wish through increase in their efficiency and wage earning capacity to advance to positions of responsibility.

Vocational education is not job training alone but direction toward, and training for complete and satisfactory living. Not everyone is fitted by interests and aptitudes for a trade or business career. Many people will be misfits if they are forced into a vocational education program simply because vocational schools are available and less expensive than some other type of educational program. Long ago educators discarded the theory that the vocational courses were the logical place for the backward, ill adjusted students. Financial status never should be the basis for determining a person's choice of occupation. Information concerning



employment possibilities in a field, interest in the work, and ability to do the work should be determining factors.

Curricula in vocational schools stress operative routine rather than instruction in theoretical subjects and cover a wide range of specialized activities. The teaching objective is primarily to develop specific skills adequate for employment in certain trades and industries. This involves instruction and practice in a variety of manipulative operations; and the trend is toward maintaining for each trade a teaching environment that reflects as much as possible the actual practices and working conditions that will be encountered upon entering the field of employment.

The term "vocational education" is a broad one including all forms of education and training which are designed to prepare persons for successful occupational work. The main branches of vocational educational training, however, are ten : 1) Carpentry, 2) Welding, 3) Decoration and protection, 4) Machine tool shop, 5) Molding and casting, 6) Repairing internal combustion engines

- 7) Sheet metal work, 8) Electric shop, 9) Plumbing
- 10) Masonry.

It is hardly possible to overestimate the importance of vocational training, and, evidently the need for it is great.

This particular vocational school is designed to serve mainly those students who go through high school and are unable to continue their education in institutes of higher learning. Upon leaving school these students find no jobs open to them except clerical and minor governmental jobs which are underpaid and unrewarding, and

of which the demand is far less than the supply.

This class of students is an asset which is not taken advantage of. They are best suited for vocational training. They have sufficient education to enable them to be trained in a comparatively short time and keep them going after graduation, and thus make them leaders in their particular vocation.

Since conditions are generally similar in many countries of the Middle East, this particular vocational school may become the standard not only for Lebanon but also for other countries of the Middle East.

Minimum entrance requirements will be either the French Brevet or its equivalent which is three years of high school. Students should have had the following subjects: arithmetic, algebra, plain geometry, general science - mainly physics and chemistry -, geography, Arabic and English. Instruction will be given mainly in English. Besides vocational subjects students will also receive a course in technical English and drafting.

To graduate students will spend three successful years in the school. During the first year they will

get acquainted with the various tools and materials and will be taught the rudiments of various trades. This is necessary since schools in the Middle East do not offer prevocational instruction to their students as for example in the United States where most schools are equipped with industrial arts laboratories. The second and third years will be devoted to specialized training in one specific trade.

Each class will be composed of about twenty students. Since five shops are provided the total number of students will be about three hundred.

Location:

The building will be located at Ras Beirut, off the beach, South of Bain Militaire. This place was chosen because it is near to the train line and is readily accessible.



To function properly a vocational school must be provided with sufficient space for shops, classrooms, drafting rooms, stock rooms, a reading room, administration offices, an auditorium, and toilet, shower and locker rooms.

#### The Shops:

Five shops have been provided, namely, a carpenter shop, a metal shop, a machine tool shop, an electric shop and a plumbing shop.

Since in vocational schools students spend most of their time in the shops the possibility of two classes working at the same time has been considered and the shops have been designed and equipped to provide work stations for forty students.

Shop spaces have been designed on the following basis : carpenter shop 11.5 sq.m. per student; metal shop 10.5 sq.m.; machine tool shop 8.5 sq.m.; electric



shop 6 sq.m.; plumbing shop 7 sq.m. per student.

Each shop is provided with a tool room, a storage room and a glass inclosed instructors' office. The carpenter shop is also provided with a glass inclosed finishing room. The finishing space had to be separated from the rest of the shop to keep it free from dust. Unfinished projects will be stored in closets under work benches. This arrangement will save space and enable pupils to proceed to their stations, find their work close at hand and start work immediately.

Simple rectangular shapes were chosen to facilitate supervision. The offices were so located that the entire shop may be visible to the instructor while he is in the office.

To prevent noise from spreading from one shop to the other and to the rest of the building the interior shop walls have been made 25 cms. thick, and where possible the shops have been separated from each other by tool and storage rooms. For the same reason the shops have been separated from the rest of the building by corridors. It was not necessary to thus separate the electric shop because the nature of the work is such

that comparatively little noise is produced.

For practical and economic reasons all shops will have concrete floors.

For further information of shop layout reference is made to drawing sheets 4 and 6.

#### The Classrooms:

The number of classrooms was based upon the assumption that students will spend about seventy five percent of their time in the shops and drafting rooms. Four classrooms were considered to be sufficient for the needs of the school. Of these three were located on the first floor and one on the second floor. On each floor a classroom was located near to the shops so that students working in the shops may be easily assembled

if the need arises for instruction, or leave to the shops immediately after instruction without loss of time.

#### The Drafting Rooms:

Two drafting rooms, one on each floor and located near the shops have been provided. This has been done so that the drafting rooms may serve also as planning rooms where a student may retire from the shops, to plan his work, study his plans, make sketches, etc... The drafting rooms have space for 96 tables, that is one table for every three students.

#### The Stock Rooms:

Two stock rooms, one on each floor, have been provided. They are so located as to make them easily accessible



both from the shops and from outside.

It was decided to provide a stock room on each floor to make easier the movement of materials to the second floor shops.

An elevator has been installed, opening into both the first and second floor corridors and stock rooms, to transfer heavy objects from one floor to the other.

#### The Reading Room:

The reading room is located far from the shops in the quietest part of the building. It can seat fifty six students and has ample shelf space for books and magazines.

### The Administration Offices:

Two offices have been provided: a general office open to the public and a private principal's office. Like the reading room they have been located far from the shops in a quiet part of the building.

Faculty conferences can be held in the reading room.

### The Auditorium:

The auditorium can seat 408 persons. It may be used for student assemblies, lectures, movies and school shows. It may be too large for the present needs of the school, but it is expected that the school will, in the future, expand to double its present size by the addition of five more shops. Upon future expansion the number of students will rise to about six hundred, and then the auditorium will be able to seat two-thirds that number which is within the limit specified for schools.

To keep the cost down the design has been kept as simple as possible.

The Shower and Locker Rooms:

The building has two shower and locker rooms, one on each floor. Gang showers were found to be the most practical since they occupy less space than individual showers and are easier to keep clean. The shower rooms are directly connected to the locker rooms and each is provided with ten shower-heads which makes a total of twenty shower heads or one for every fifteen students. Each locker room has seventy five lockers which makes a total of 150 lockers or one for every two students.



Approximate Cost of the Building:

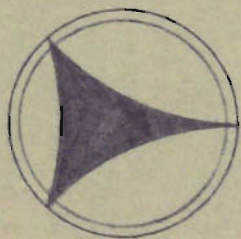
The approximate cost of the building, excluding the cost of equipment and land, will be about 300,000 L.L.

Future Expansion:

Since space has been provided for teaching only five of the above mentioned ten trades, provision has been made for the future addition of five more shops.

For future expansion another wing will be added to the South of the building and will be connected to the rest by pulling down the corridor wall. Unfortunately time did not permit the design of the future addition, but most probably it will be similar to the west wing of the building. Including the other related spaces, four more classrooms will be added, two near to the shops as is the case in the west wing of the building, and the other two will be built over the two East class-

rooms of the present building (see drawing sheet 2). Since upon future expansion more space will be needed for administration, the present reading room will be divided into two offices and a conference room , and a new and larger reading room will be provided in the new wing.



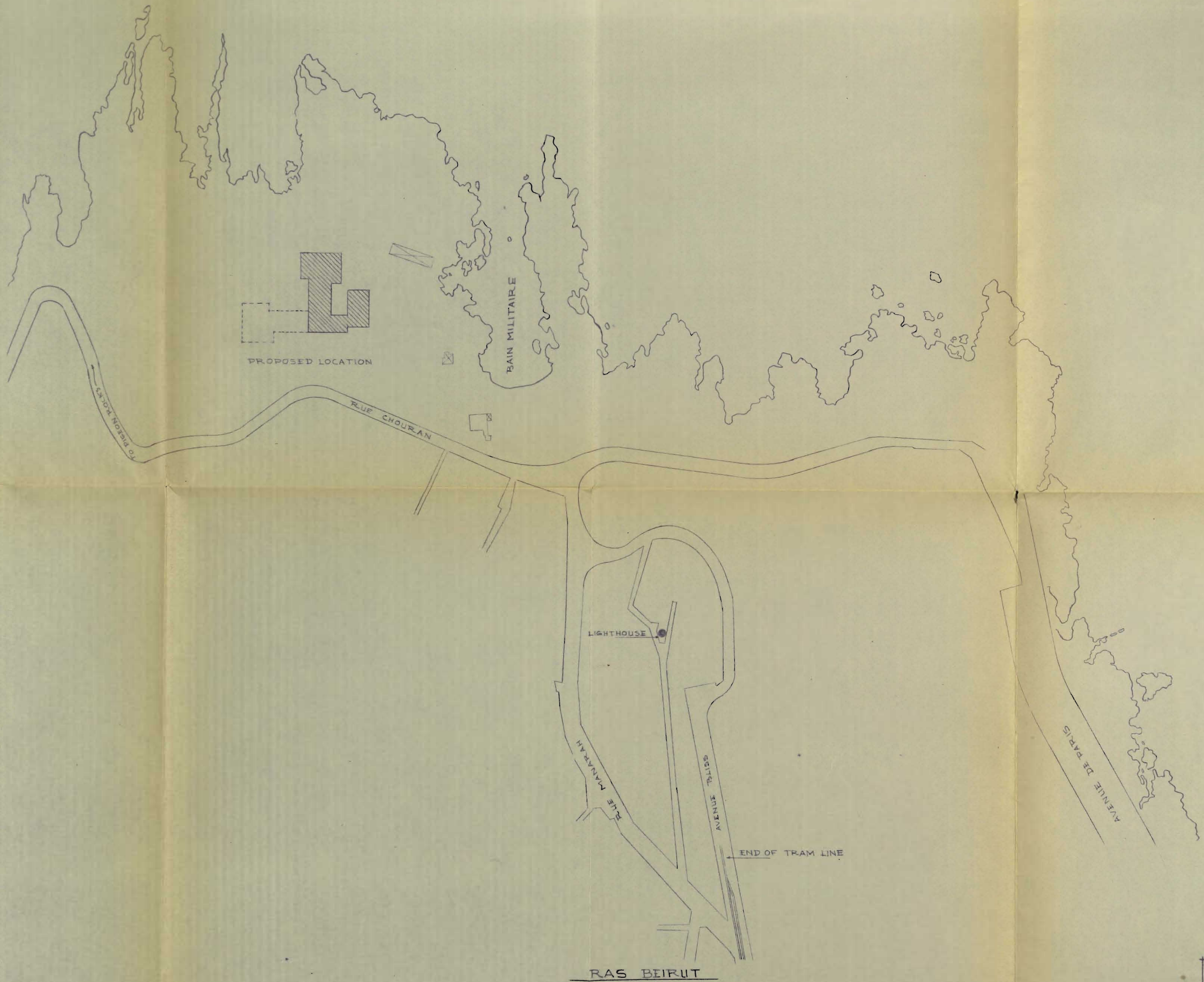
SCHOOL OF ENGINEERING - A. U. B.  
PROJECT: VOCATIONAL SCHOOL  
—— LOCATION PLAN ——

DESIGNED BY: CHRIS DONABEDIAN

DATE: APRIL 1953

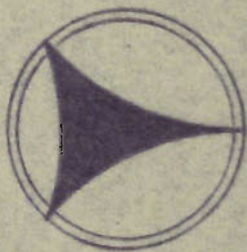
SCALE: 1/2000 SHEET 1 OF 10





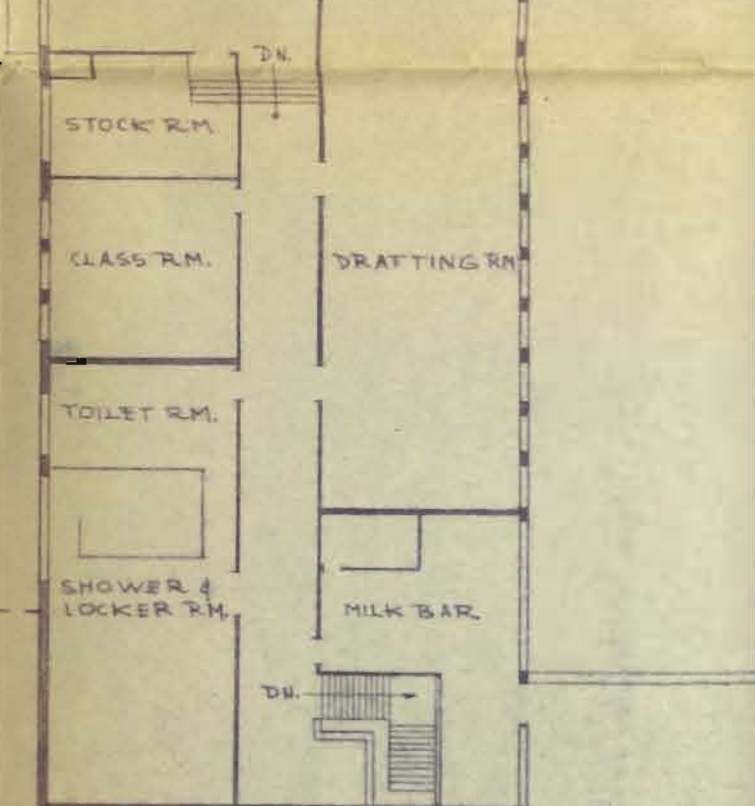
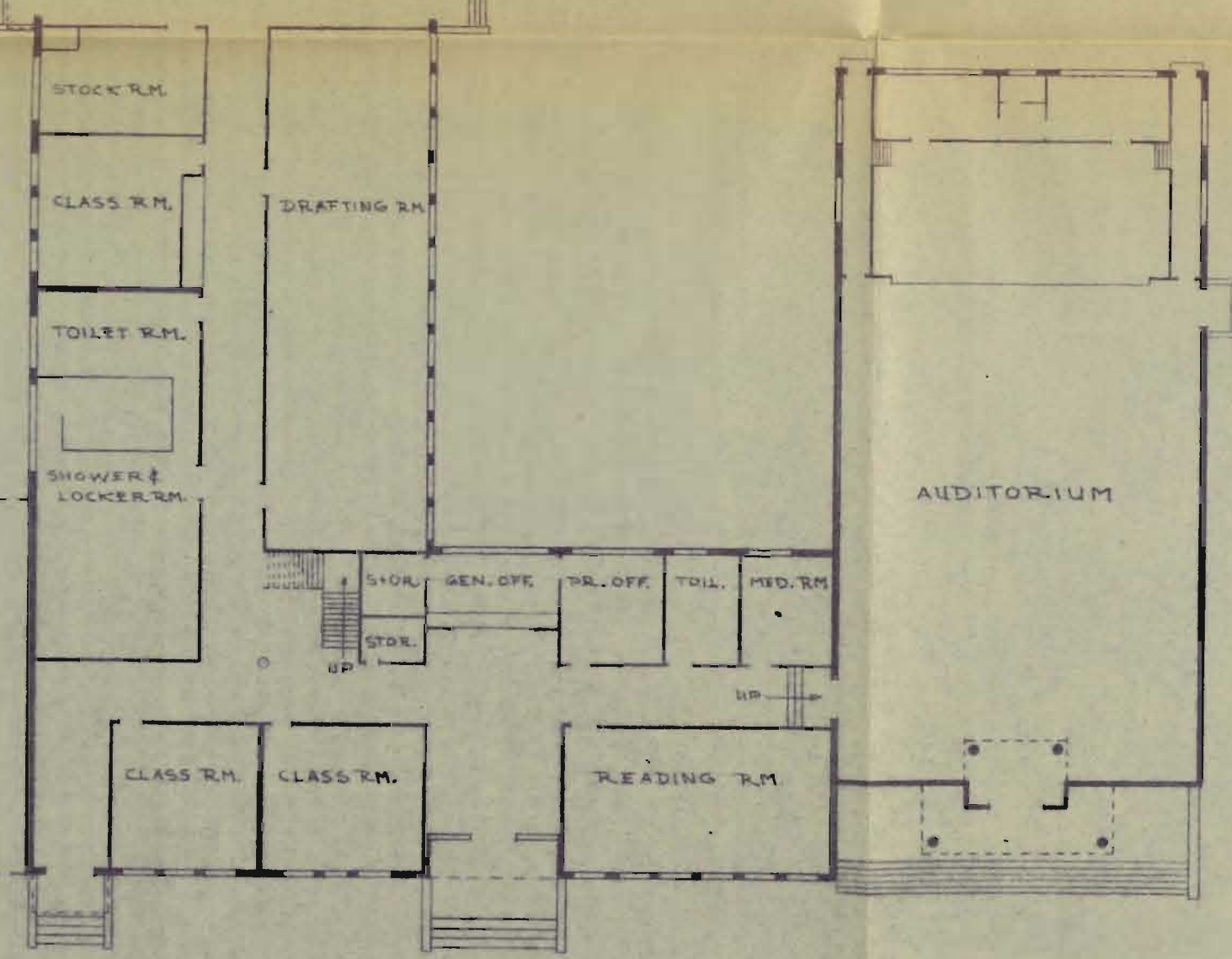
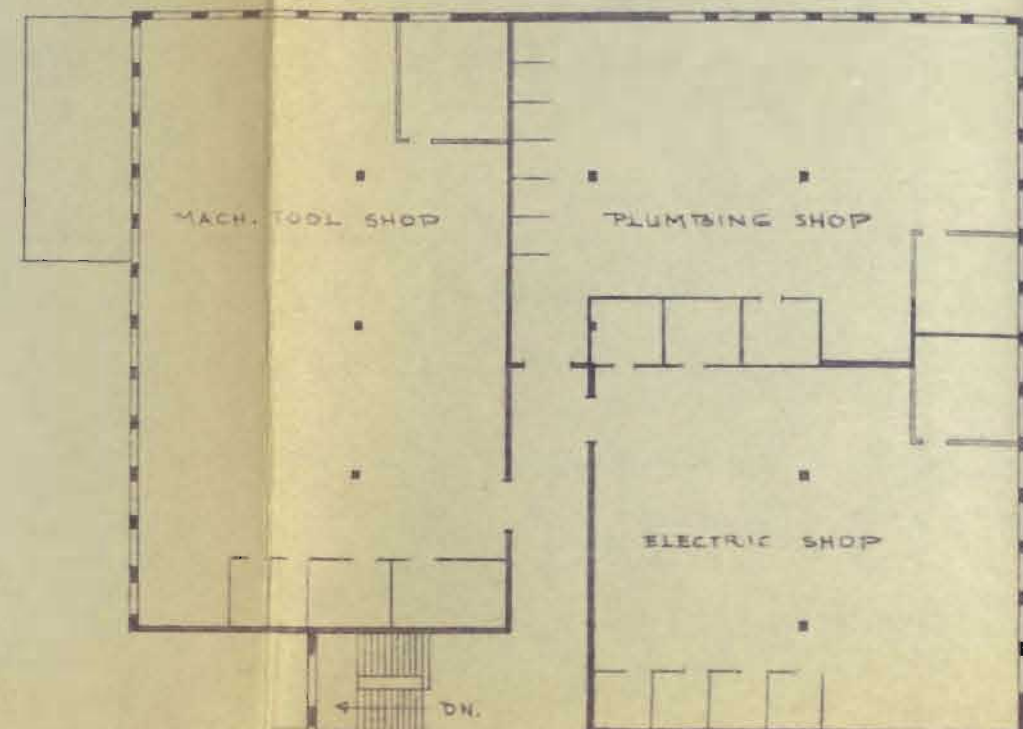
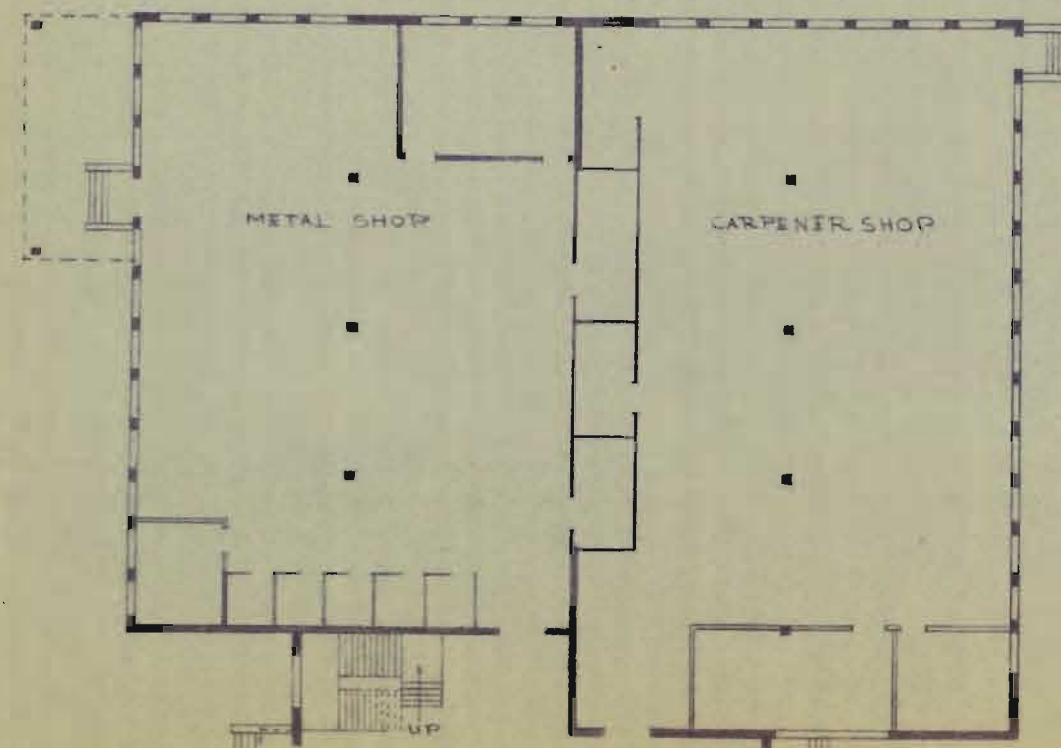
SCHOOL OF ENGINEERING -  
PROJECT: VOCATIONAL S  
LOCATION PLAN  
DESIGNED BY: CHRIS DON  
DATE: APRIL 1953 SCALE: 1/2000





SCHOOL OF ENGINEERING - A. U. B.  
PROJECT: VOCATIONAL SCHOOL  
FIRST AND SECOND FLOOR PLANS  
DESIGNED BY: CHRIS. DONABEDIAN  
DATE: APRIL 1953      SCALE: 1/300      SHEET 2 OF 10





FUTURE ADDITION

FUTURE ADDITION

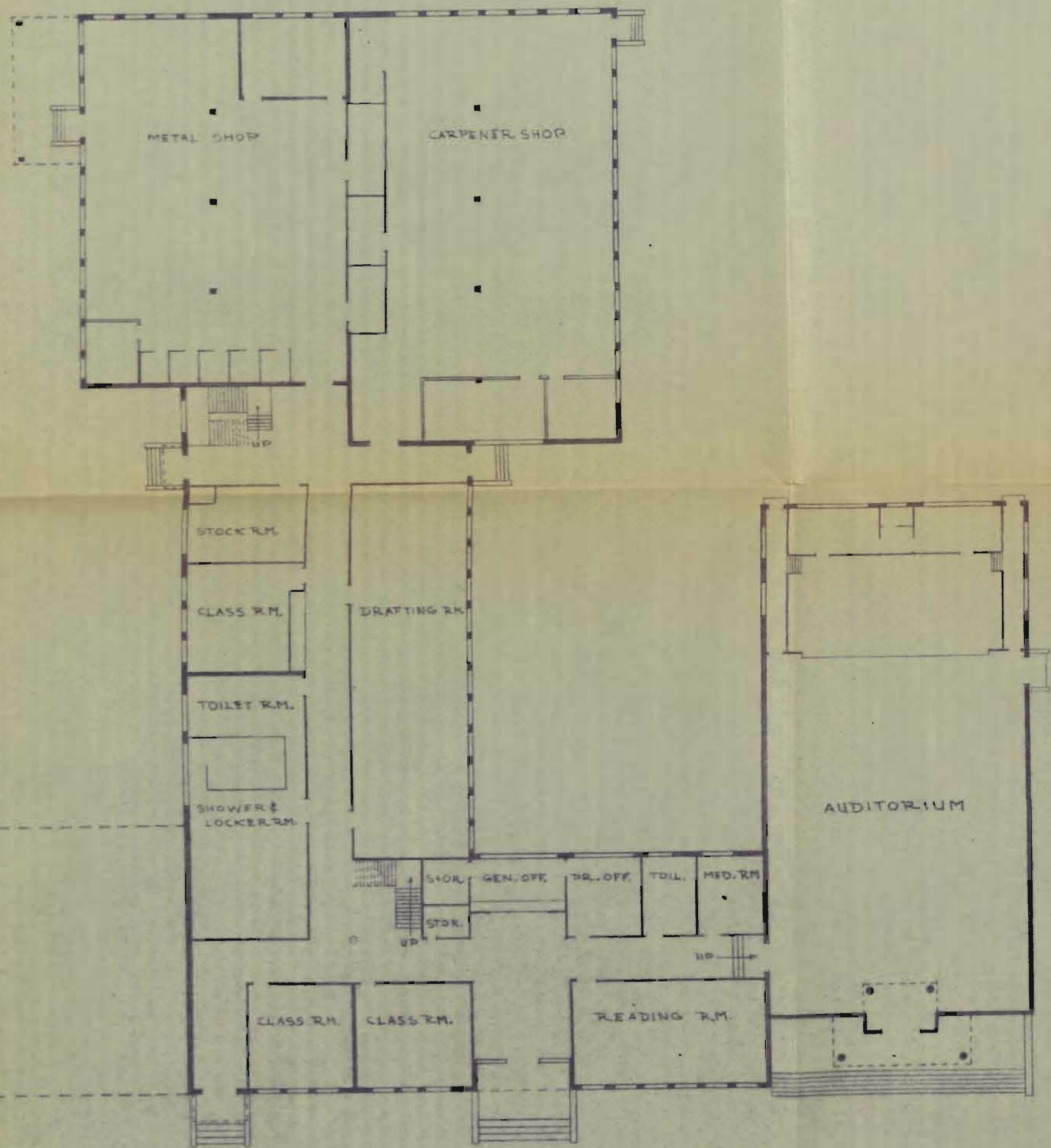
FUTURE CLASS R.M.S.

FIRST FLOOR

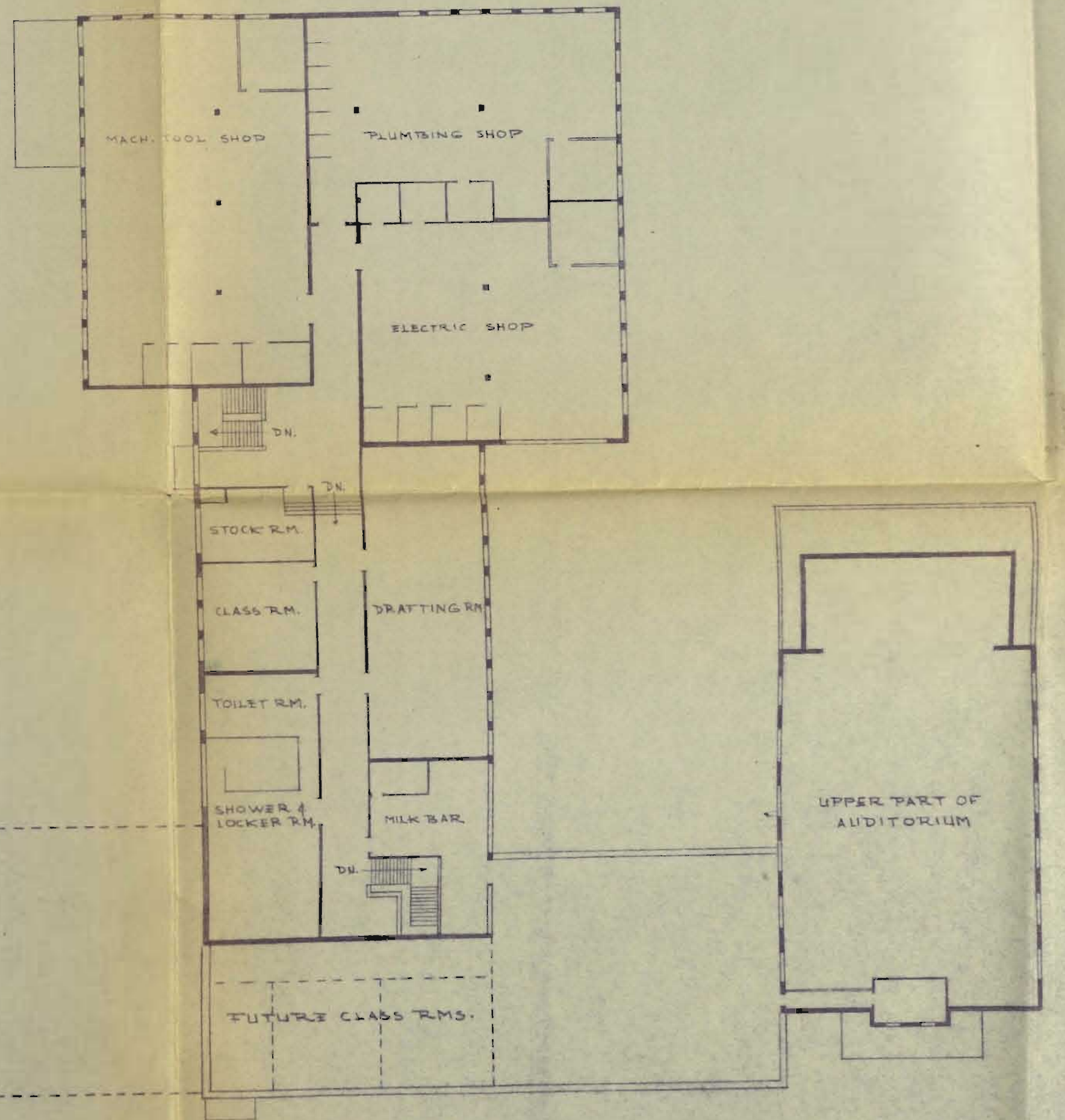
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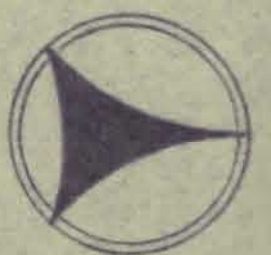


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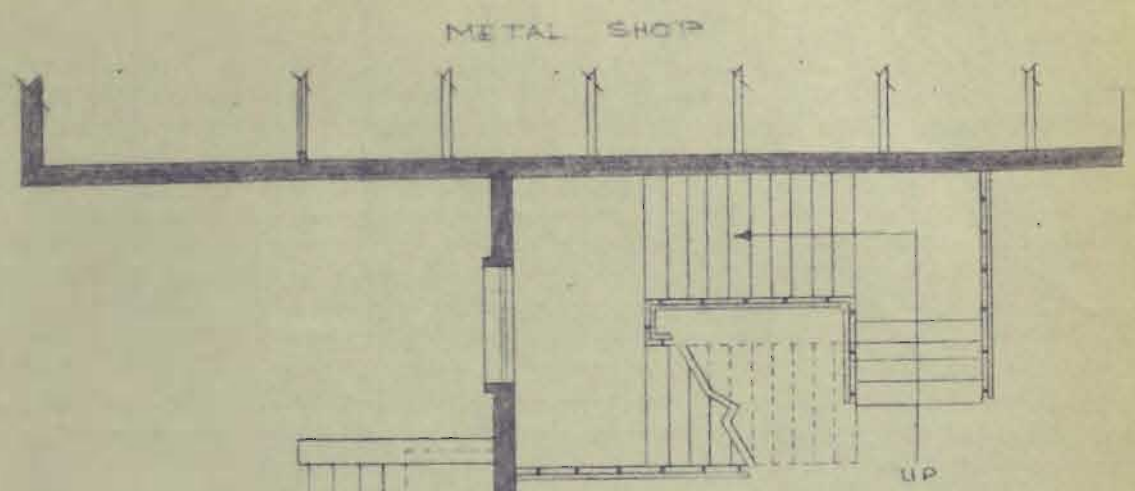
SECOND FLOOR

FUTURE ADDITION



SCHOOL OF ENGINEERING - A. U. B.  
 PROJECT: VOCATIONAL SCHOOL  
 FIRST AND SECOND FLOOR PLANS  
 DESIGNED BY: CHRIS. DONABEDIAN  
 DATE: APRIL 1953 SCALE: 1/300 SHEET 2 OF 10





← A



HIGH WINDOW

STOCK ROOM  
7.60 X 5.00 M.

CLASS ROOM 7.00 X 7.20

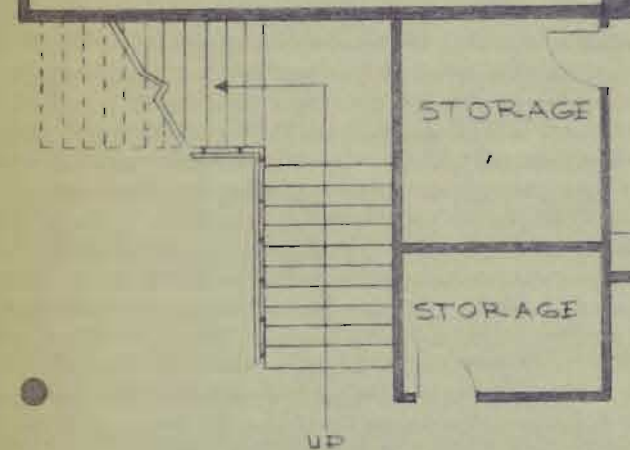
EXHIBITION WINDOW

DRAFTING ROOM  
7.60 X 24.00

TOILET ROOM 7.60 X 4.00

HIGH WINDOWS

SHOWER & LOCKER R.M.  
7.60 X 13.00

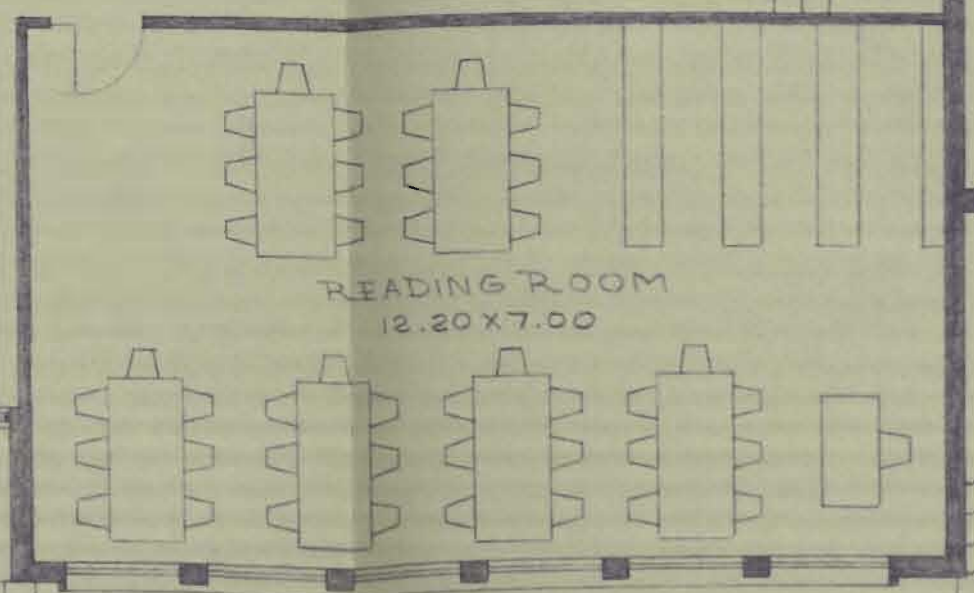
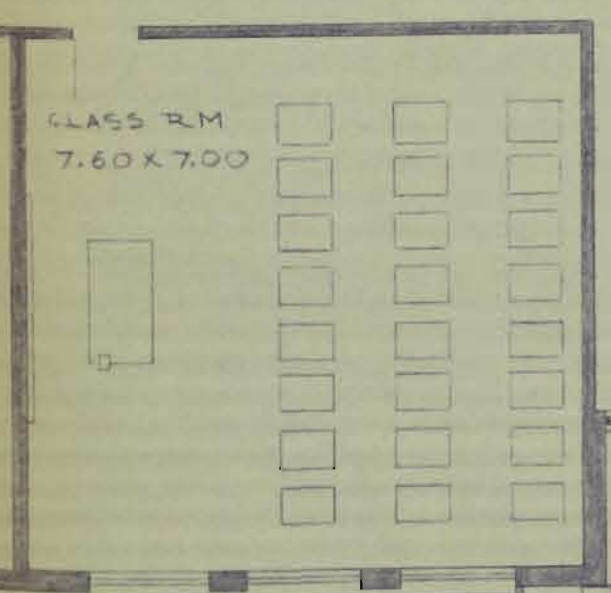
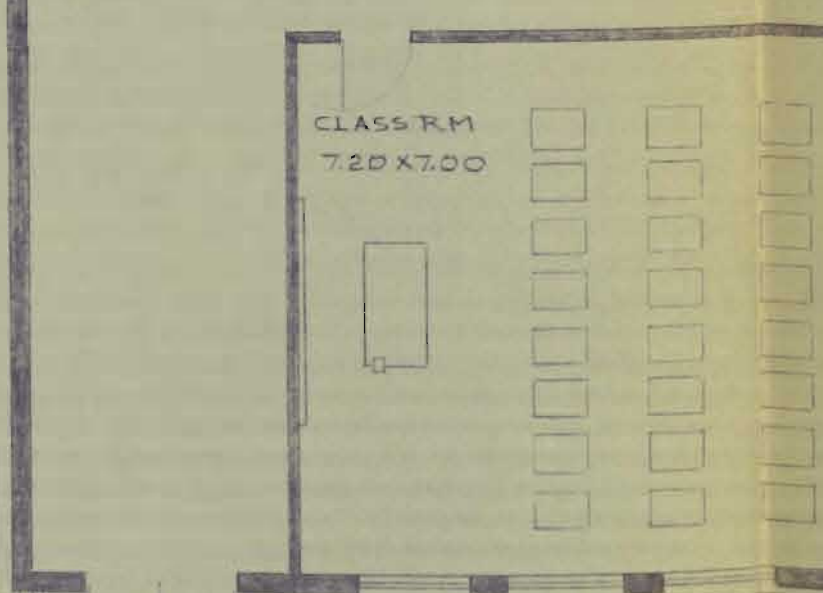


STORAGE

GENERAL OFFICE  
6.00 X 3.30

PRINCIPAL'S OFFICE  
4.80 X 5.00

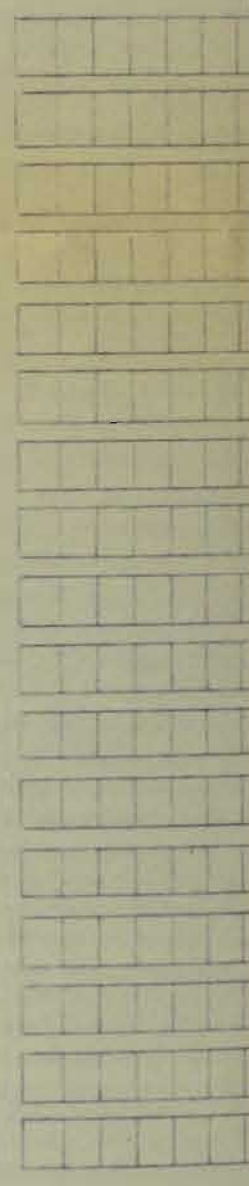
MEDICAL ROOM  
4.50 X 5.00



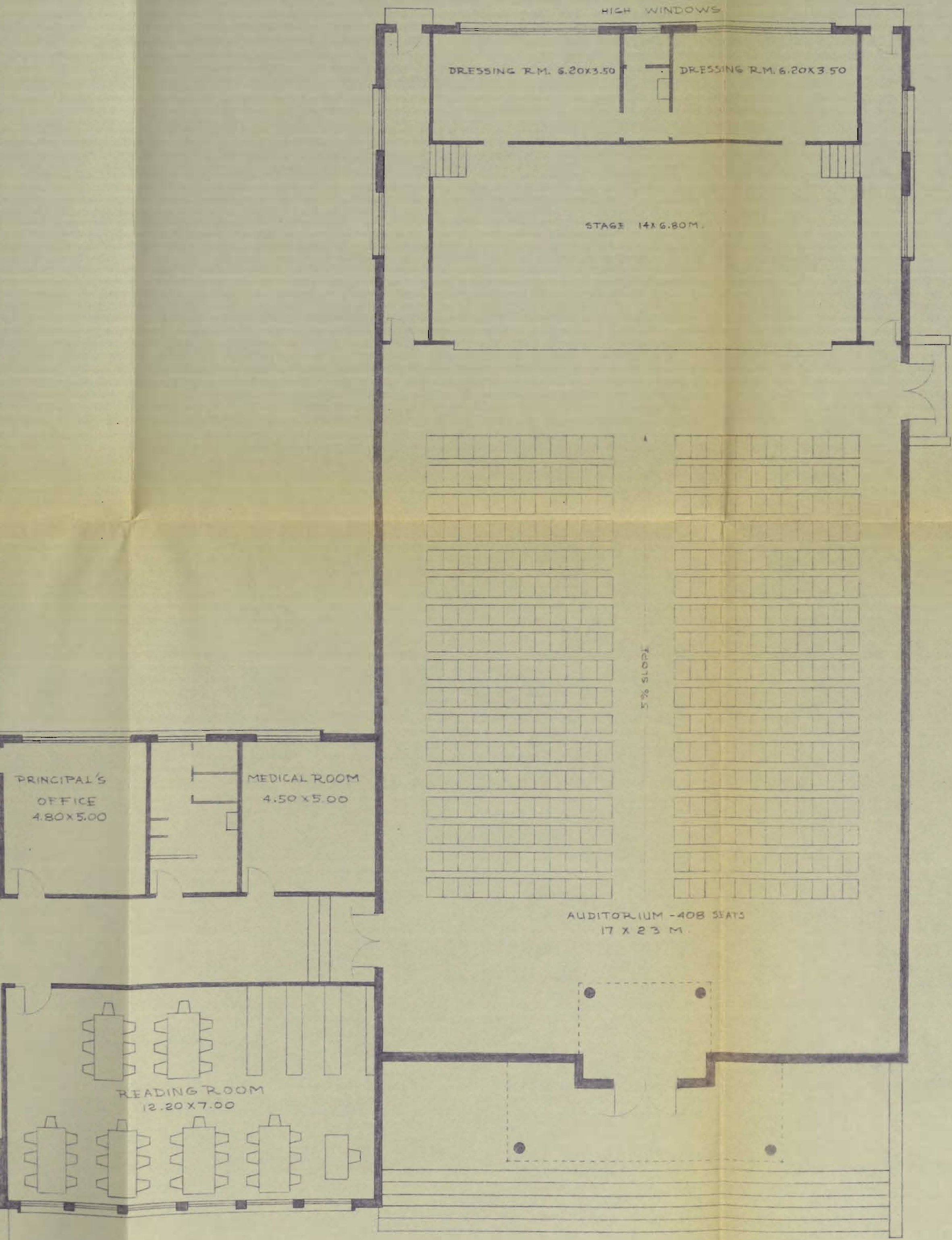
← A



DRESSING R.

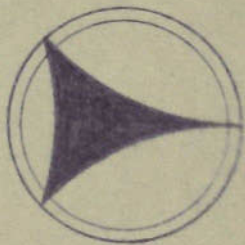






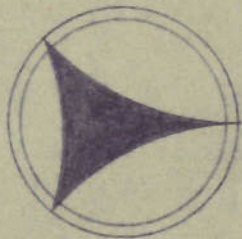
SCHOOL OF ENGINEERING - A. U. B.  
PROJECT: VOCATIONAL SCHOOL  
— PLAN, FIRST FLOOR —  
DESIGNED BY: CHRIS. DONABEDIAN  
DATE: APRIL 1953 SCALE: 1/100 SHEET 3 OF 10





SCHOOL OF ENGINEERING - A . U . B .  
PROJECT: VOCATIONAL SCHOOL  
—— PLAN, FIRST FLOOR ——  
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DATE: APRIL 1953    SCALE: 1/100    SHEET 3 OF 10





SCHOOL OF ENGINEERING — A . U . B .  
PROJECT : VOCATIONAL SCHOOL

— SHOPS , FIRST FLOOR —

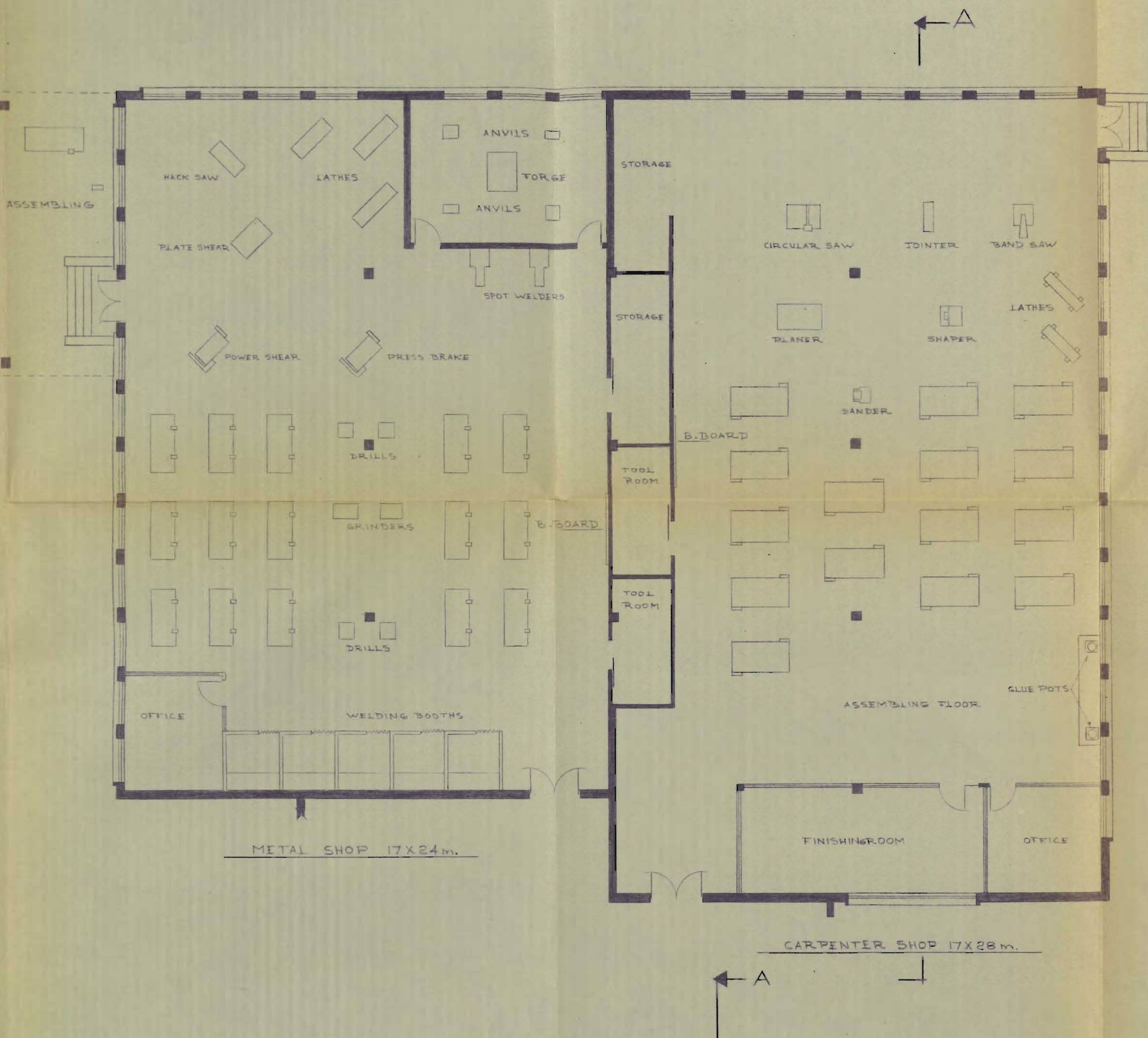
DESIGNED BY : CHRIS. DONABEDIAN

DATE : APRIL 1953

SCALE : 1/100

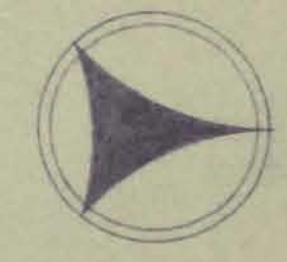
SHEET 4 OF 10





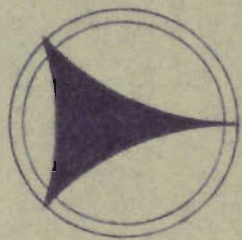
METAL SHOP 17X24m.

CARPENTER SHOP 17X28m.



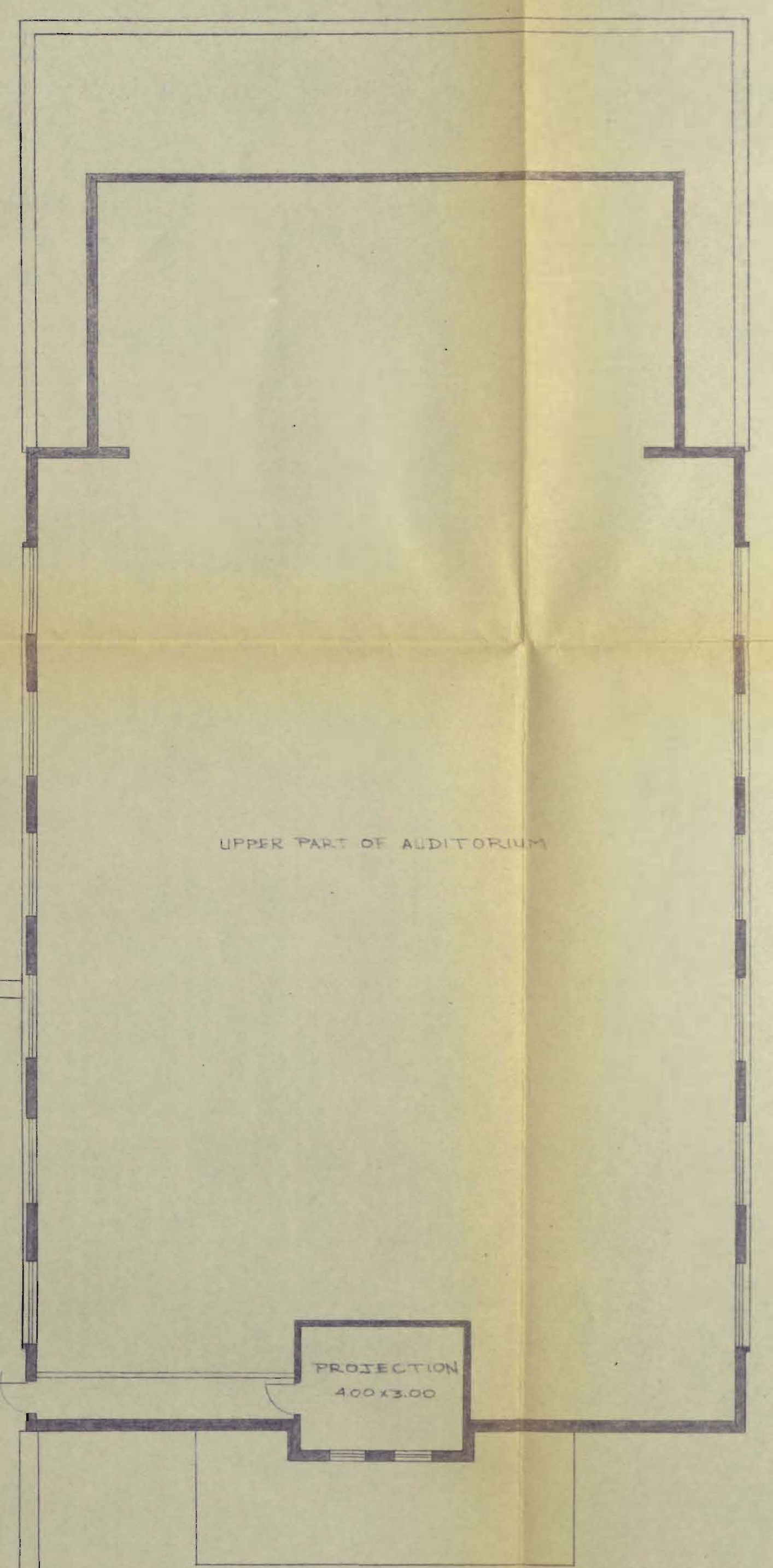
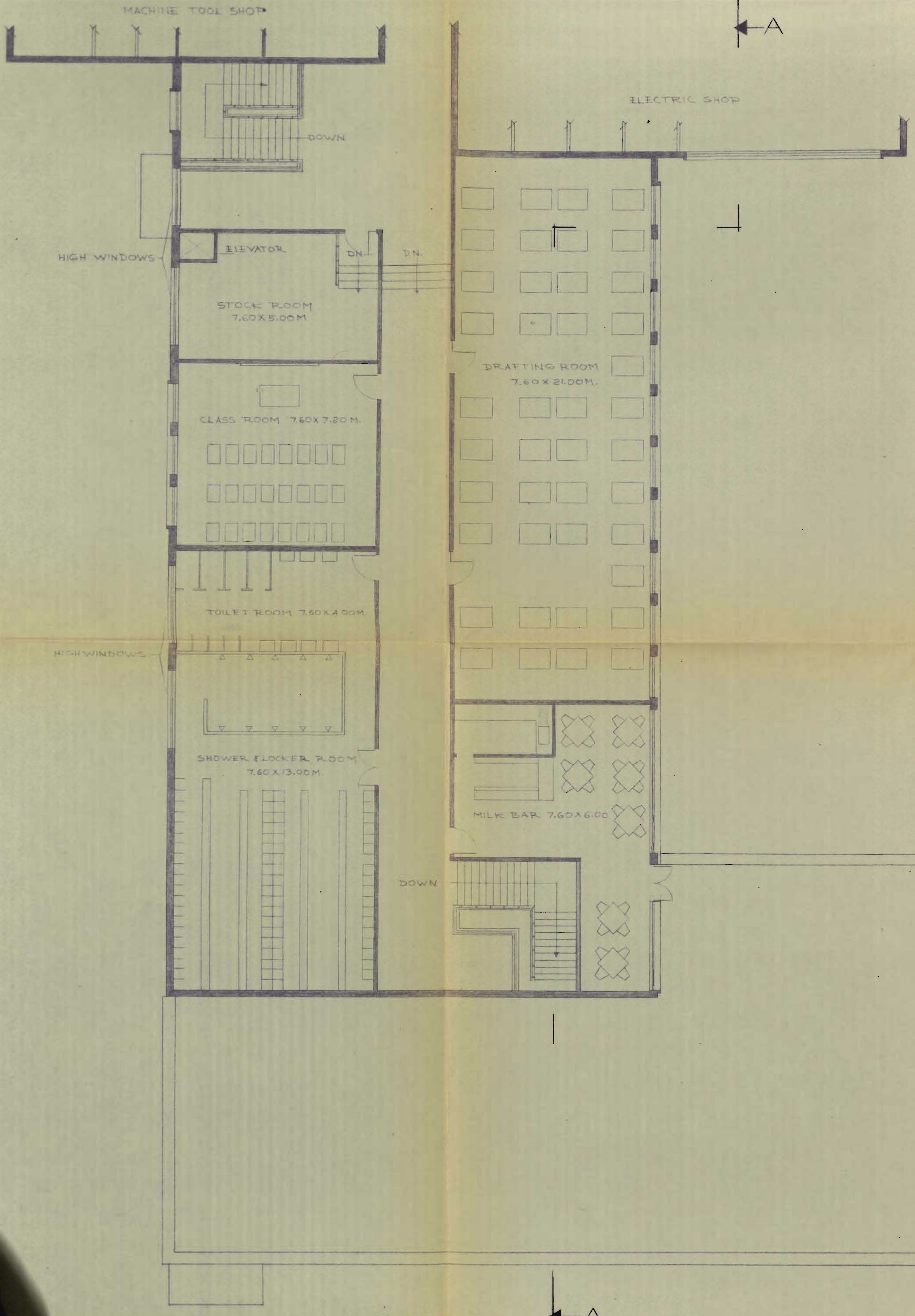
SCHOOL OF ENGINEERING - A. U. B.  
 PROJECT: VOCATIONAL SCHOOL  
 SHOPS, FIRST FLOOR  
 DESIGNED BY: CHRIS. DONABEDIAN  
 DATE: APRIL 1953 SCALE: 1/100 SHEET 4 OF 10



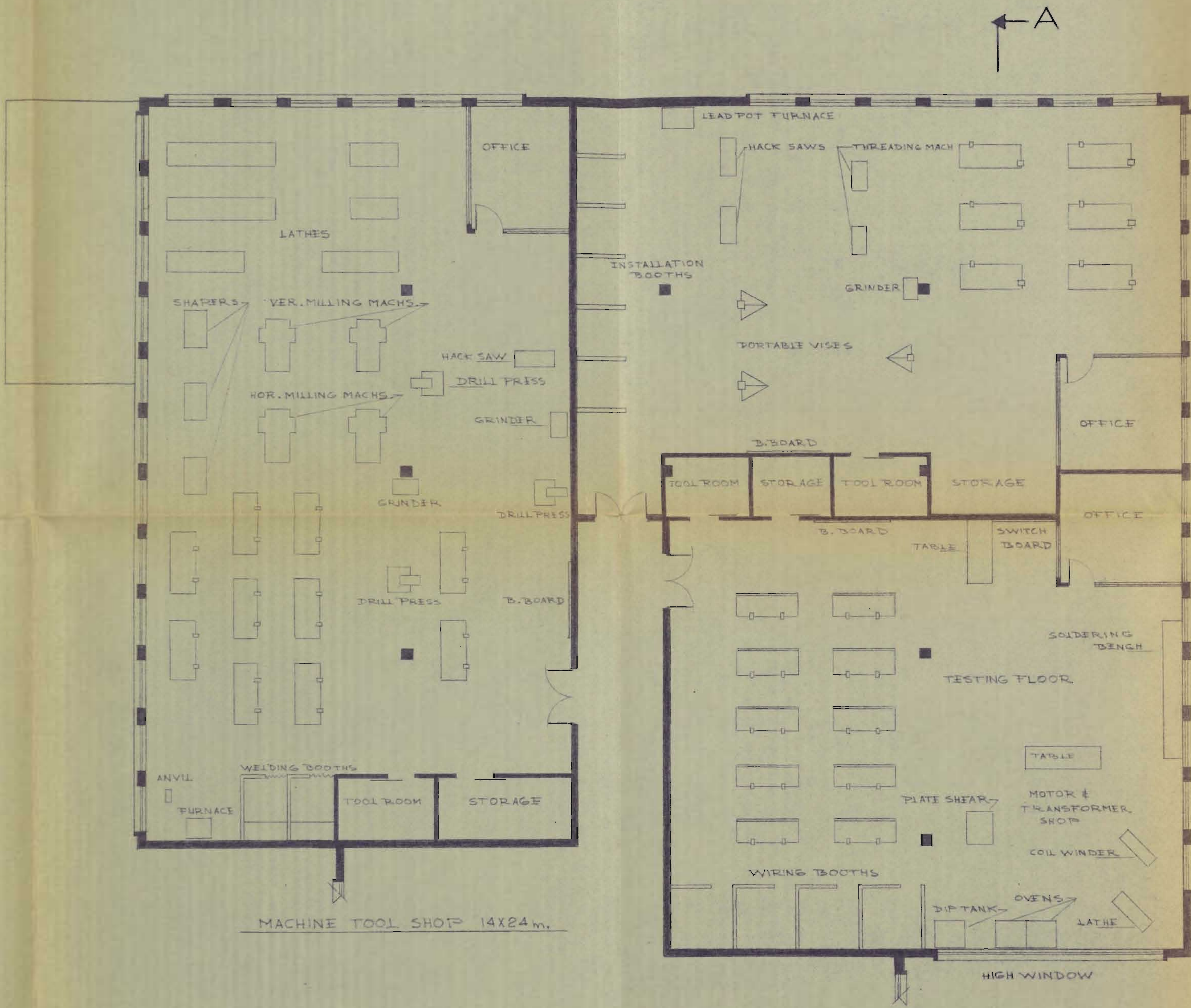


SCHOOL OF ENGINEERING - A.U.B  
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PLAN, SECOND FLOOR  
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DATE: APRIL 1953 SCALE: 1/100 SHEET 5 OF 10









MACHINE TOOL SHOP 14X24 m.

← A  
 PLUMBING SHOP (TOP) 20X13.5 m.  
 ELECTRIC SHOP (BOTTOM) 17X14.5 m.



SCHOOL OF ENGINEERING - A. U. B  
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 — SHOPS, SECOND FLOOR —  
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 DATE: APRIL 1953 SCALE: 1/100 SHEET 6 OF 10





SCHOOL OF ENGINEERING - A. U. B  
PROJECT: VOCATIONAL SCHOOL

— SHOPS, SECOND FLOOR —

DESIGNED BY: CHRIS. DONABEDIAN

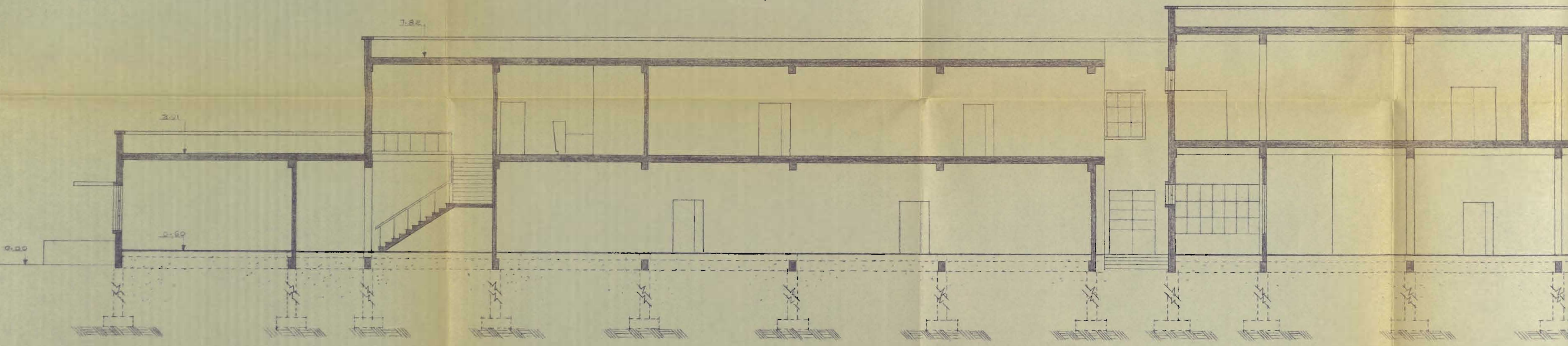
DATE: APRIL 1953    SCALE: 1/100    SHEET 6 OF 10

SCHOOL OF ENGINEERING - A . U . B  
PROJECT: VOCATIONAL SCHOOL  
—— SECTION A-A ——

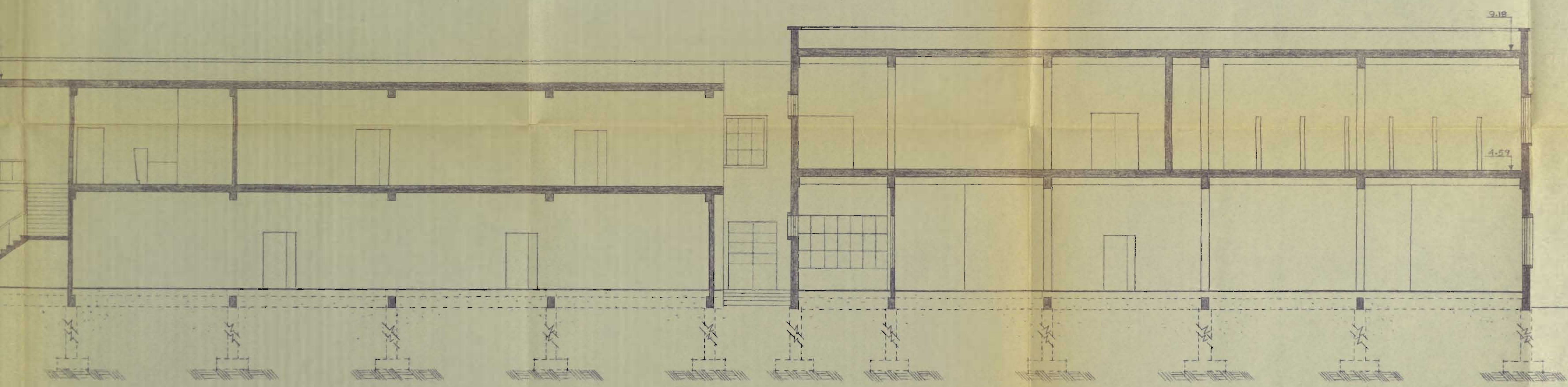
DESIGNED BY: CHRIS. DONABEDIAN

DATE: APRIL 1953      SCALE: 1/100      SHEET 7 OF 10









SCHOOL OF ENGINEERING - A.U.B.  
PROJECT: VOCATIONAL SCHOOL  
SECTION A-A  
DESIGNED BY: CHRIS. DONABEDIAN  
DATE: APRIL 1953. SCALE: 1/100 SHEET 7 OF 10



SCHOOL OF ENGINEERING - A. U. B.

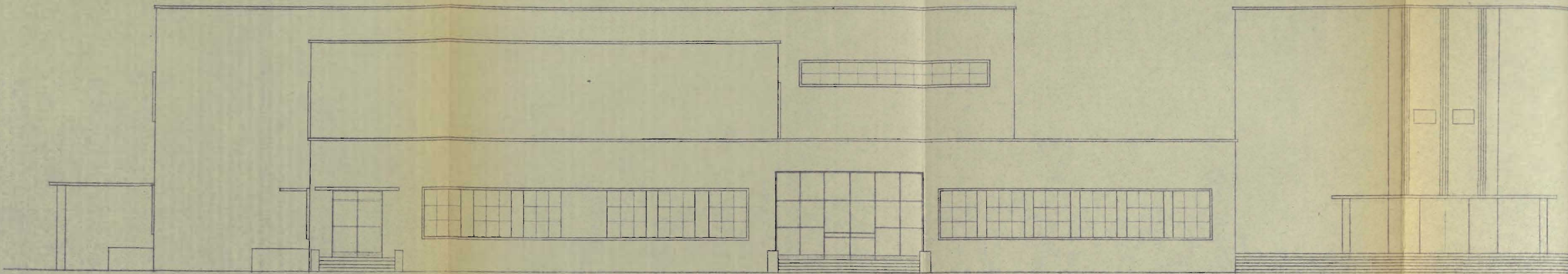
PROJECT: VOCATIONAL SCHOOL

————— ELEVATIONS —————

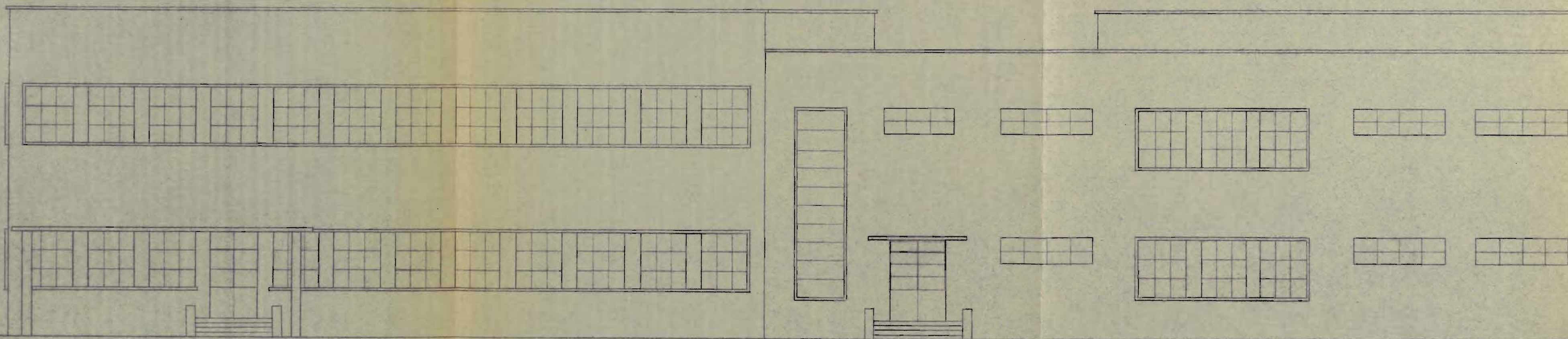
DESIGNED BY: CHRIS. DONABEDIAN

DATE: APRIL 1953      SCALE: 1/100      SHEET 8 OF 10



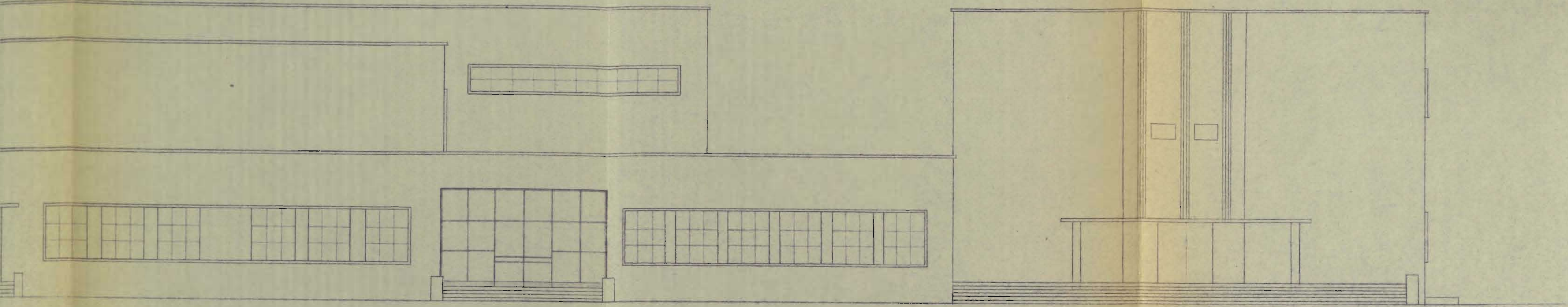


EAST ELEV.

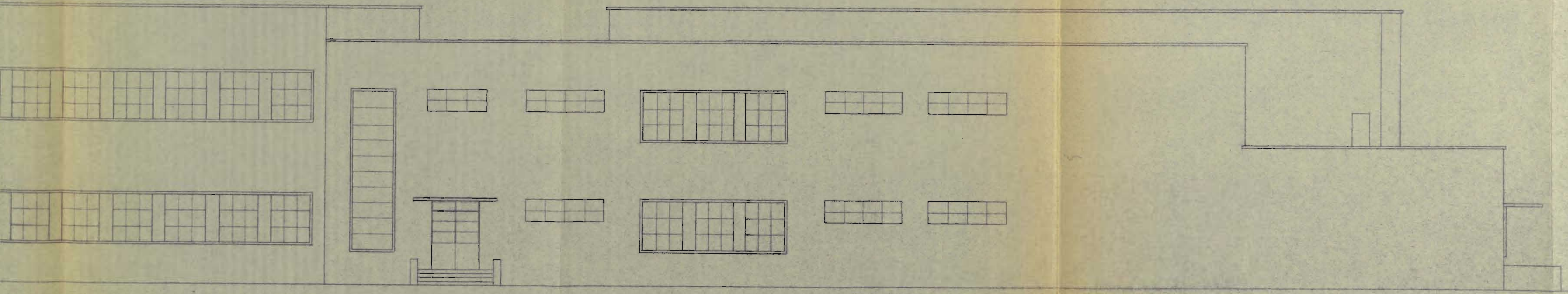


SOUTH ELEV.





EAST ELEV.



SOUTH ELEV.

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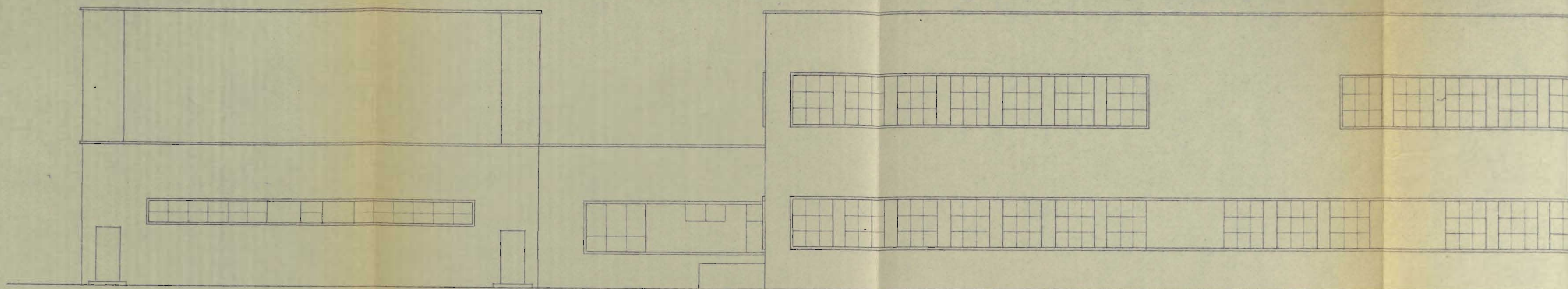


SCHOOL OF ENGINEERING - A. U. B  
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———— ELEVATIONS ————

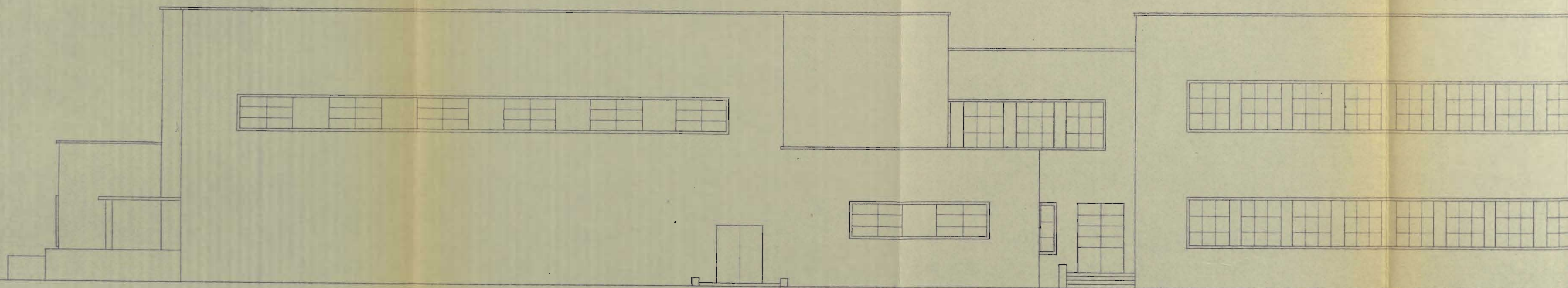
DESIGNED BY: CHRIS. DONABEDIAN

DATE: APRIL 1953      SCALE: 1/100      SHEET 9 OF 10



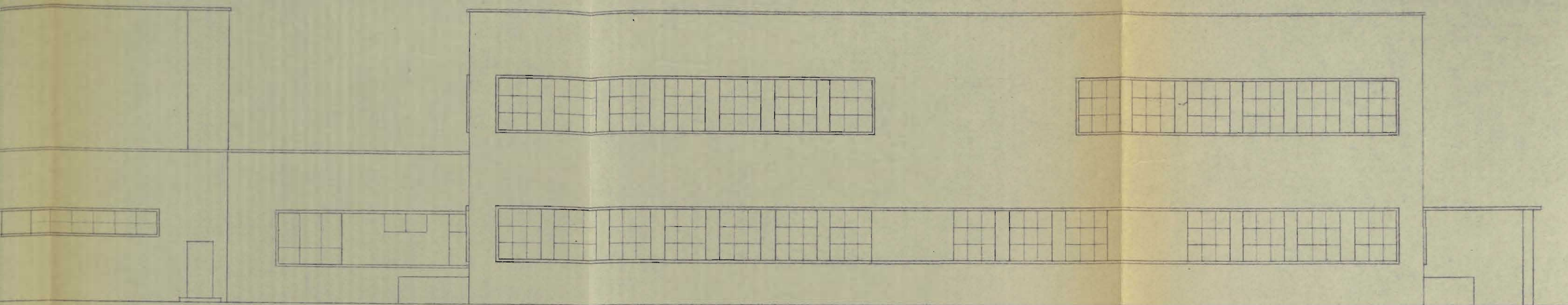


WEST ELEV.

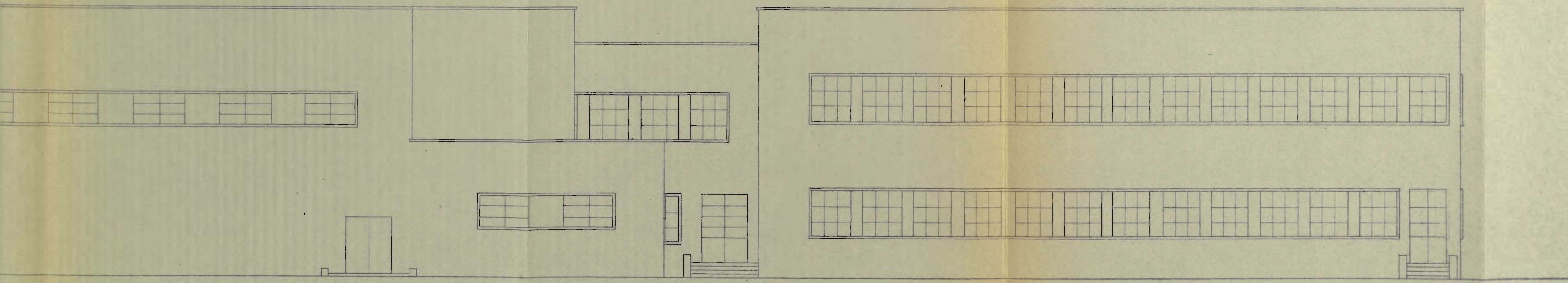


NORTH ELEV.





WEST ELEV.



NORTH ELEV.

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ELEVATIONS  
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DATE: APRIL 1953 SCALE: 1/100 SHEET 9 OF 10

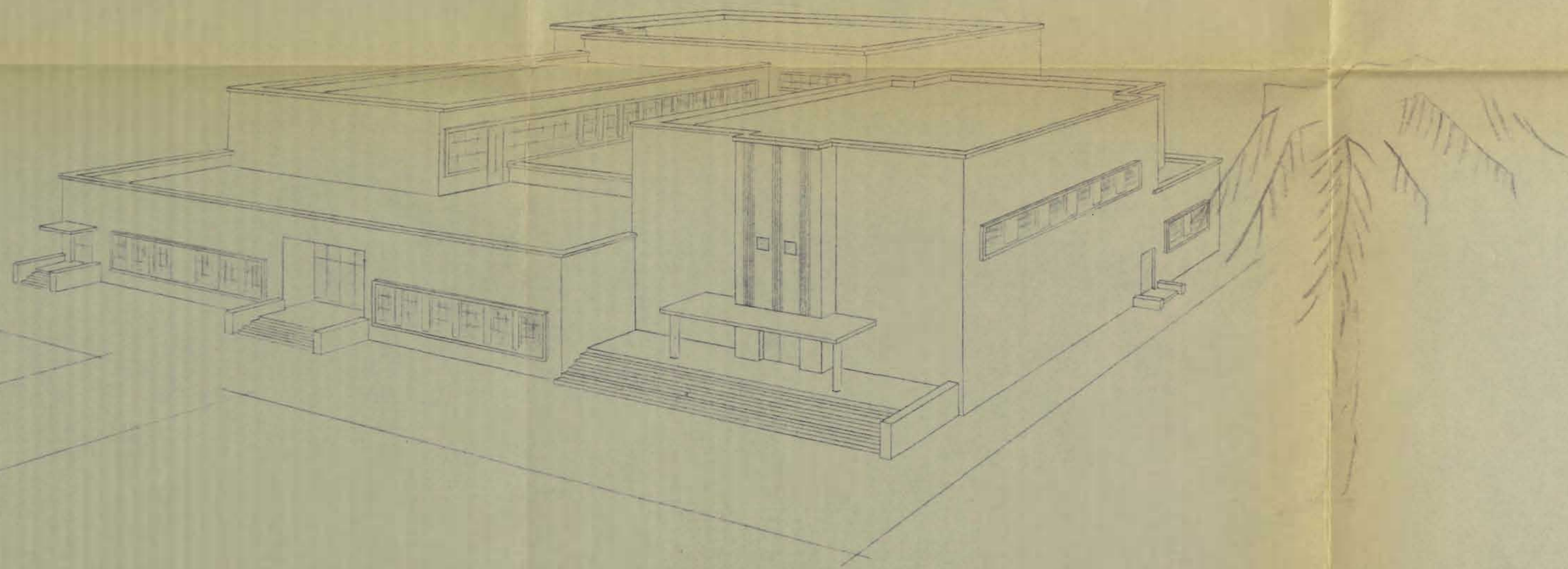


SCHOOL OF ENGINEERING - A. U. B.  
PROJECT: VOCATIONAL SCHOOL  
————— PERSPECTIVE —————

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DATE: APRIL 1953      SCALE: 1/100      SHEET 10 OF 10





SCHOOL OF ENGINEERING - A. U. B.  
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