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The major purpose of this guide is to elicit the necessary information for the writing of educational specifications for facilities to house career programs in laboratory animal science technology. The guide is also designed to: (1) assist planners in formation of creative solutions to the housing of desired educational programs, (2) prevent important considerations from being overlooked in the facility planning process, and (3) encourage logical and systematic facility planning. The document is organized into four major parts: (1) Introduction, a discussion of purpose, organization, assumptions, instructional trends, and guiding principles, (2) The Instructional Program, relating basic program features, educational objectives, program content, planning areas, and occupational preparation programs offered, (3) Distinct Types of Instructional Areas to be Provided, in which the actual space needed to house the vocational programs are described in detail, and (4) Annotated Bibliography, a list of reference sources. (DM)
A GUIDE FOR PLANNING FACILITIES FOR OCCUPATIONAL PREPARATION PROGRAMS IN LABORATORY ANIMAL SCIENCE TECHNOLOGY
The Center for Vocational and Technical Education has been established as an independent unit on The Ohio State University campus with a grant from the Division of Comprehensive and Vocational Education Research, U. S. Office of Education. It serves a catalytic role in establishing consortia to focus on relevant problems in vocational and technical education. The Center is comprehensive in its commitment and responsibility, multidisciplinary in its approach, and interinstitutional in its program.

The major objectives of The Center follow:

1. To provide continuing reappraisal of the role and function of vocational and technical education in our democratic society;

2. To stimulate and strengthen state, regional, and national programs of applied research and development directed toward the solution of pressing problems in vocational and technical education;

3. To encourage the development of research to improve vocational and technical education in institutions of higher education and other appropriate settings;

4. To conduct research studies directed toward the development of new knowledge and new applications of existing knowledge in vocational and technical education;

5. To upgrade vocational education leadership (state supervisors, teacher educators, research specialists, and others) through an advanced study and inservice education program;

6. To provide a national information retrieval, storage, and dissemination system for vocational and technical education linked with the Educational Resources Information Center located in the U. S. Office of Education.
A GUIDE FOR PLANNING FACILITIES FOR

OCCUPATIONAL PREPARATION PROGRAMS

IN LABORATORY ANIMAL SCIENCE TECHNOLOGY

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This publication was prepared pursuant to a grant with the Office of Education, U.S. Department of Health, Education and Welfare. Contractors undertaking such projects under Government sponsorship are encouraged to express freely their judgment in professional and technical matters. Points of view or opinions do not, therefore, necessarily represent official Office of Education position or policy.
FOREWORD

One of the most fundamental concerns in planning for vocational and technical education facilities is that of assuring that educational requirements dictate the nature of the facilities. Other concerns include planning a sufficiently adaptable and flexible structure to permit needed modifications and programmatic changes over the lifetime of the building. Experiences have shown that adequate manuals and guide materials can provide substantial assistance in planning educational facilities. This document is a guide for planning facilities for occupational preparation programs in laboratory animal science technology. The information recorded in the guide is to be used in the preparation of educational specifications.

The guide lists a series of pivotal questions about the educational program to be offered. The answers to these program questions bear directly on the numbers and kinds of instructional areas needed in the contemplated facilities. After program decisions are recorded, the guide provides for the description of instructional areas needed to meet program requirements. Much of the material is presented in a checklist format which allows for consideration of alternatives in facility planning.

The guide was designed for use by any person or groups of persons responsible for planning laboratory animal science technology facilities. It is anticipated that knowledgeable persons such as laboratory animal science instructors, state supervisors, school plant planners, and local administrators will find the guide a useful planning tool. The guide can also be used for instructional purposes at universities, colleges, seminars, and institutes.

This guide is the fifth in a series being developed by The Center. Remaining facility planning guides, soon to be published, are in the areas of automotive services, dental technology, medical technology, and metallurgy technology. The medical technology area will consist of three guides: X-ray technicians, medical secretaries, and medical assistants. The dental technology area will consist of three guides: dental assistants, dental hygienist, and dental laboratory technicians. The Center is also publishing a general vocational and technical facility planning guide, which can be used to plan facilities for a single vocational program, two or more programs, or an entire school.

Another facility publication by The Center for Vocational and Technical Education is entitled "A Guide to Systematic Planning for Vocational and Technical Schools." This guide should be especially helpful to local and state school officials who need a total perspective of the sequential tasks involved in the process of program and facility planning. All principal planning activities from initial survey to building occupancy are described and depicted graphically in planning networks.

All guides follow the general format developed by The Center project staff and Dr. M. J. Conrad, head, Administration and Facilities Unit, College of Education, The Ohio State University.
The Center for Vocational and Technical Education, The Ohio State University, worked cooperatively with Dr. Walter Collins and Professor William Farnsworth, Agriculture and Technical College, Delhi, New York, in preparing this planning guide. Center staff project members were Dr. Richard F. Meckley, Mr. Ivan E. Valentine, and Mr. Zane McCoy.

The Center is grateful to the many individuals and groups whose assistance and suggestions led to the successful conclusion of the project. Special appreciation is due to Dr. Jerry J. Halterman, professor, Agricultural Education, The Ohio State University; Mr. Fred Manley, consultant, State Department of Community Colleges, Raleigh, North Carolina; and Mr. William Martin, president, Central Carolina Technical Institute, Sanford, North Carolina, for their thoughtful and helpful review of the initial draft of the guide.

Robert E. Taylor
Director
The Center for Vocational and Technical Education
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IN LABORATORY ANIMAL SCIENCE TECHNOLOGY
PART I

INTRODUCTION

PURPOSE OF GUIDE

The major purpose of this guide is to elicit the necessary information for the writing of educational specifications for facilities to house career programs in laboratory animal science technology. The guide was developed as a facility planning tool for use by such knowledgeable persons as laboratory animal science instructors, state supervisors, school plant planners, and local school officials.

In addition to providing important and comprehensive information to be incorporated in educational specifications the guide is also designed to:

• Assist planners in the formation of creative solutions to the housing of desired educational programs.

• Prevent important considerations from being overlooked in the facility planning process.

• Encourage logical and systematic facility planning.

ORGANIZATION OF GUIDE

The facility planning guide is organized under four major headings or parts. Part I (Introduction) is a discussion of the major purpose, the underlying assumptions, recent instructional trends, and the guiding principles which were utilized in the preparation of the guide.

In Part II (The Instructional Program) important information is sought on the animal science basic program features, objectives and the kinds of vocational-technical programs which will be organized to implement them.
In Part III (Distinct Types of Instructional Areas to be Provided) the actual spaces desired to house the vocational-technical programs are described in detail.

Part IV is an annotated bibliography of reference sources which offer a more detailed treatment of the various phases of facility planning.

UNDERLYING ASSUMPTIONS

Important assumptions were made in the preparation of this guide. They were:

- Major educational program decisions have or are being made. Content of instruction has been determined through educational surveys, advisory committees, school board study, etc. Instructional methods have been determined by qualified animal science instructors and other appropriate staff members. To assure adequate educational program planning, the guide will ask important questions which may serve as guidelines to such planning.

- The numbers and kinds of students to be served by the program are generally known. Such information has been provided by enrollment projections, housing patterns, census data, student interests studies, etc.

- Sufficient finances are available to support both the provision of facilities and to operate the kinds of educational programs outlined in the guide.

- A cooperative or collaborative relationship has been established with knowledgeable community personnel who are aware of economic, political, and social conditions and changes which must be taken into account in short- and long-range educational planning.

RECENT INSTRUCTIONAL TRENDS

- Expanded programs are needed in the occupational preparation program to reach not only the average and those who are college bound, but also the unusually gifted, the physically handicapped, the mentally retarded and the culturally deprived.

- The proximity, flexibility, and convenience of classrooms and work areas where teachers can plan together and produce materials encourages cooperation among teachers in developing inter-disciplinary units or courses.
Mobile equipment and convenient space for storing it is making the same space available for many purposes and resulting in more efficient space utilization.

Mechanical and electronic teaching aids are being employed increasingly by instructors in occupational preparation programs. To some extent, the effective use of such devices depends upon accessibility and convenience of storage.

GUIDING PRINCIPLES

In planning facilities to house programs of vocational data processing, educational program and facility decisions should be consistent with the following guiding principles.

- The educational program is the basis for space and facilities planning.
- Space and facilities should accommodate changes in the educational program.
- The program must serve the needs of a variety of groups in the community.
- Space and facilities for the program can be extended through the use of community resources.
- Safe and healthful facilities should be provided for all children.
PART II

THE INSTRUCTIONAL PROGRAM

Part II of the guide records important instructional program decisions with respect to basic program features, objectives, and needed information on occupational preparation programs to be housed.

BASIC PROGRAM FEATURES

Basic features of the educational program are determined greatly by a school or department's educational philosophy. A philosophy of education provides a base from which program objectives and teaching and learning activities designed to meet these objectives can be derived. In the final analysis, it is the kinds of teaching and learning activities to be carried on which should determine facility needs.

In this section, planners have an opportunity to express basic program features which will serve as guidelines for the planned occupational preparation programs in laboratory animal science.

Indicate below the relative degree of agreement on each of the stated program features by circling the appropriate number. The scale provided for this purpose is as follows: 1 = major major emphasis; 2 = some emphasis; 3 = slight emphasis; and N = no emphasis. (This same scale will be used frequently throughout the planning guide.)

1. Purpose of Program

   a) To prepare students for gainful employment

   1 2 3 N

   6/
b. To prepare students for entry into further training programs. The nature of this further training is: 1 2 3 N

c. To prepare students for employment as veterinary assistants--specialty in large animal practice 1 2 3 N
d. To prepare students for employment as veterinary assistants--specialty in small animal hospitals 1 2 3 N
e. To prepare students for employment as laboratory animal care technicians 1 2 3 N
f. To prepare students for employment as bio-medical research technicians 1 2 3 N
g. To prepare students for employment as technicians in regulatory fields of public health and inspection (meat and food) 1 2 3 N
h. Other statements of program purposes which should be included are:
   1) 
   2) 
   3) 
   4) 

2. Students

a. Student admission to the program is on the basis of selective criteria which include:
   1) 
   2) 
   3) 
   4) 

b. Emphasis is placed on the learning of manual skills by students. 1 2 3 N
c. Emphasis is placed on the learning of theory by students. 1 2 3 N
d. Students have freedom of movement and access to learning materials. 1 2 3 N
e. Cooperative student work experience with local business and industry is an important phase of the program. 1 2 3 N
f. Other basic program features relating to students which should be included are:
3. Instruction

a. The instructional approach is single discipline (animal science) as opposed to inter-disciplinary (animal science, pure science, etc.). If not a single discipline approach, describe the inter-disciplinary approach and the disciplines involved.

Yes No

b. Cooperative or team instruction will be used. If this mode of instruction is to be extensively emphasized, describe in general terms.

Yes No

c. Community resources will be utilized in instruction. If a high emphasis is to be placed on use of community resources, describe some of these resources.

Yes No

d. Instructional flexibility is required. If a high emphasis is to be placed on instructional flexibility please describe the kinds of flexibility desired.

Yes No

e. Specialists from the animal science industry will be utilized to enrich the instructional program. If high emphasis is to be placed on use of field specialists, specify the areas involved.

Yes No

f. Faculty members will be selected for their specialty in the animal science program. Qualifications for selection will be

Yes No

g. The animal vivarium will be made up of several animal species to provide maximum animal care experiences. The species to be included are

Yes No
h. The instructional approach will make use of audio-visual aids equipment, for greater impact, (such as closed circuit television) wherever possible. Types of equipment or media to be involved are ____________ Yes  No

4. Other basic program features important to the planned instructional program:
   a. ___________________________________________________________________________
   b. ___________________________________________________________________________
   c. ___________________________________________________________________________
   d. ___________________________________________________________________________

EDUCATIONAL OBJECTIVES

Educational objectives are often identified as goals or outcomes of the educational program. An objective should describe a desired educational outcome that is consistent with a school's philosophy.

Objectives are important to both the planner and the architect since they determine the school's program and related activities. They provide important implications which when translated into facilities can both enhance as well as adequately house the desired program. Thus it becomes imperative to clearly establish the program objectives prior to embarking on educational specifications and subsequent building design.

The purpose of this part of the guide is to bring together these elements in a way to provide direction and understanding for both the planner and the architect. Space is provided below to indicate degree of emphasis by circling the appropriate number for each of the objectives, and to list additional objectives. The scale provided for this stated purpose ranges from 1 for major emphasis down to N for no emphasis.

   1 major emphasis
   2 some emphasis
   3 slight emphasis
   N no emphasis

1. To prepare students for entry into gainful employment  1  2  3  N

2. To motivate and recruit capable and qualified students to enroll in post-secondary school programs  1  2  3  N

3. To permit individuals to retrain or return to continue professional training  1  2  3  N

10
4. To accentuate good physical and mental health through programs of study and activity

5. To provide pre-professional education training for students who plan to enter colleges and universities

6. To develop in students specific and measurable knowledge and skills related to clinical testing for animal disease, which includes:
   
a. developing a knowledge of human and animal diseases which require clinical testing as basis for proper diagnosis
   b. collection and preparation of tissue and biological specimens for testing
   c. performing actual chemical and physical tests on specimens collected
   d. ability to apply histological techniques as a skill in helping to diagnose disease
   e. reading and interpreting results of tests performed
   f. proper recording of results
   g. developing an understanding of the ethics involved in laboratory testing and reporting
   h. ability to utilize the full range of diagnostic instruments and equipment applicable to this area
   i.__________________________________________
   j.__________________________________________

7. To develop in students specific and measurable knowledge and skills related to basic animal care which includes:
   
a. Knowledge of different domestic and zoo species, breeds and strains of animals
   b. Knowledge relating to proper nutrition according to species
   c. An understanding of the importance of proper housing and handling as it relates to maximum animal production, health and humane treatment of animals
   d. A knowledge of how to improve animal strains and species through the application of genetic principles
1 major emphasis
2 some emphasis
3 slight emphasis
N no emphasis

e. Ability to operate and maintain various
   pieces of equipment vital to efficient
   and sanitary operation of an animal
   vivarium 1 2 3 N

f. An understanding and ability to
   operate pieces of equipment involved
   in care and housing of large animals 1 2 3 N

g. An understanding and ability to
   operate specialized pieces of equip-
   ment involving care and housing in a
   veterinary hospital 1 2 3 N

h. Knowledge of local, state, and federal
   laws pertaining to general animal care,
   treatment, and movement 1 2 3 N

i. 1 2 3 N

j. 1 2 3 N

8. To develop in students specific and
   measurable knowledge and skills in basic
   sciences relating to the field which include:

a. A knowledge of basic mathematics 1 2 3 N
b. A knowledge of basic inorganic
   chemistry 1 2 3 N
c. A knowledge of basic organic and
   biological chemistry 1 2 3 N
d. A knowledge of qualitative and/or
   quantitative chemistry 1 2 3 N
e. A knowledge of basic biology including
   the various microbiologies 1 2 3 N
f. A knowledge of basic accounting and
   bookkeeping 1 2 3 N
g. 1 2 3 N
h. 1 2 3 N

9. To develop in students specific and
   measurable knowledge and skills in anatomy
   and physiology which includes:

a. Recognition of normal form or structure
   of different animal species 1 2 3 N
b. Recognition of normal body function of
   different animal species 1 2 3 N
c. To be able to identify abnormalities
   of animal form and function 1 2 3 N
d. The ability to relate and apply know-
   edge of anatomy and physiology to
   actual clinical situations 1 2 3 N
e. The ability to relate and apply know-
  ledge of anatomy and physiology in
   actual experimental and research
   situations 1 2 3 N
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<th>1 major emphasis</th>
<th>2 some emphasis</th>
<th>3 slight emphasis</th>
<th>N no emphasis</th>
</tr>
</thead>
<tbody>
<tr>
<td>f. The ability to operate equipment which monitors normal and/or abnormal physiological function, as found in many veterinary clinics</td>
<td>1 2 3 N</td>
<td>1 2 3 N</td>
<td>1 2 3 N</td>
</tr>
<tr>
<td>g. The ability to operate equipment which monitors normal and/or abnormal physiological function, as used involving animals in biomedical institutions</td>
<td>1 2 3 N</td>
<td>1 2 3 N</td>
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</tr>
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10. To develop in students specific and measurable knowledge and skills in anesthesiology which include:

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<th>2 some emphasis</th>
<th>3 slight emphasis</th>
<th>N no emphasis</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. Understanding of the purpose and methods of anesthesiology</td>
<td>1 2 3 N</td>
<td>1 2 3 N</td>
<td>1 2 3 N</td>
</tr>
<tr>
<td>b. Understanding of operation of various anesthetic apparatus</td>
<td>1 2 3 N</td>
<td>1 2 3 N</td>
<td>1 2 3 N</td>
</tr>
<tr>
<td>c. Ability to apply techniques of anesthesiology throughout the duration of surgical procedures</td>
<td>1 2 3 N</td>
<td>1 2 3 N</td>
<td>1 2 3 N</td>
</tr>
<tr>
<td>d. Ability to maintain, coordinate, and service equipment utilized for anesthetic procedures</td>
<td>1 2 3 N</td>
<td>1 2 3 N</td>
<td>1 2 3 N</td>
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<tr>
<td>e. An understanding and ability to utilize anesthetics as a humane method of disposing of incurably sick or unwanted animals</td>
<td>1 2 3 N</td>
<td>1 2 3 N</td>
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11. To develop in students specific and measurable knowledge and skills in radiological techniques, which include:

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<tr>
<td>a. An understanding of the theoretical basis for radiological diagnosis</td>
<td>1 2 3 N</td>
<td>1 2 3 N</td>
<td>1 2 3 N</td>
</tr>
<tr>
<td>b. Ability to position the patient and operate the radiological equipment to secure a roentgenogram of diagnostic quality</td>
<td>1 2 3 N</td>
<td>1 2 3 N</td>
<td>1 2 3 N</td>
</tr>
<tr>
<td>c. Ability to properly process exposed radiological film</td>
<td>1 2 3 N</td>
<td>1 2 3 N</td>
<td>1 2 3 N</td>
</tr>
<tr>
<td>d. To develop an intelligent awareness of the dangers inherent in the use of radiological equipment, both to the patient and the operator</td>
<td>1 2 3 N</td>
<td>1 2 3 N</td>
<td>1 2 3 N</td>
</tr>
<tr>
<td>e. Understanding of the use of radiological equipment as used in therapy</td>
<td>1 2 3 N</td>
<td>1 2 3 N</td>
<td>1 2 3 N</td>
</tr>
</tbody>
</table>
12. To develop in students specific and measurable knowledge and skills in surgical assisting, which include:

- Basic understanding of asepsis and aseptic techniques as it applies to the area of surgery
- Knowledge of preparation of surgical packs, surgical trays and surgical instruments
- Ability to prepare patients for surgery
- Knowledge of procedures involved as a surgical assistant during the surgical exercise
- Knowledge of necessary aftercare required by surgical patients
- Knowledge of duties involved in cleaning up the operative area following surgery
- 
- 

13. To develop in students specific and measurable knowledge and skills involved in the production of germ-free life, which include:

- Methods of evolving animal species to germ-free status
- To have a fundamental knowledge of production and maintenance of these germ-free derived species
- To have a knowledge of design construction, and operation of the basic types of isolator systems
- To have a knowledge of procedures required for sterilizing isolator components, food and supplies
- To gain a knowledge of how germ-free animals may be utilized in research
- 
- 

14. To develop in students specific and measurable knowledge and skills in veterinary clinical and hospital management which include:

- Development of ability to act as a professional receptionist to all types of pet-patients and clients
b. Knowledge of proper telephone techniques as used in the veterinary clinic  1 2 3 N

c. Knowledge and understanding of veterinary "practice ethics"  1 2 3 N

d. Knowledge and ability to keep historical and financial records on all patient/clients  1 2 3 N

e. Ability to act as a nurse in elucidating patient health history, providing restraint of the patient, and assisting in administering medication  1 2 3 N

f. A basic knowledge of veterinary drugs, their nature and usage, and the ability to mix and compound drugs and fill prescriptions  1 2 3 N

g. Ability to inventory and maintain the drug stock  1 2 3 N

h. Understanding of responsibilities involved in everyday hospital patient care  1 2 3 N

i. Understanding of responsibilities involved in properly discharging patients from the hospital to their owners  1 2 3 N

j. Understanding the responsibilities involved in the ancillary area of "boarded" animals  1 2 3 N

k. ___________________________________________  1 2 3 N

l. ___________________________________________  1 2 3 N

15. To develop in senior students specific and measurable knowledge and skills in seminar work, which include:

a. Learning to develop an experimental design or do adequate library research  1 2 3 N

b. Ability to arrive at intelligent conclusions regarding the outcome of an experiment  1 2 3 N

c. Ability to present an interesting and informative oral report for student enlightenment and discussion  1 2 3 N

d. Ability to prepare a technically scientific written report in the students field of major interest  1 2 3 N

e. ___________________________________________  1 2 3 N

f. ___________________________________________  1 2 3 N

16. Other program objectives include:

a. ___________________________________________

b. ___________________________________________

c. ___________________________________________

d. ___________________________________________
The educational program in animal science should be designed to meet its established objectives. All decisions made with respect to the educational program should be consistent with established philosophy and objectives.

Instruction in animal science can be classified into the two major categories of general studies and specialized occupational preparation. This guide is designed to assist in the planning of facilities for specialized occupational preparation programs.

In general studies, the courses emphasize acquisition of general knowledge and the development of understanding, attitudes, and skills relevant to science, mathematics, English, social studies, physical education and health.

In occupational preparation, the courses in specialized areas of instruction emphasize the student's acquisition of technical knowledge and the development of understanding, attitudes and skills relevant to occupational preparation and the utilization of specialized skills in animal science. Learning activities and experiences are organized to enable students to develop competencies essential for entry into their chosen occupations, to further training, or to acquire new or additional competencies for upgrading in their occupational profession.

Instruction in occupational preparation in animal science is usually offered in specialty subject area courses (or disciplines). Subject matter is coordinated with appropriate field, laboratory, classroom, and work experience. Programs of occupational preparation for animal science can be classified under the five broad headings or content areas of: 1) Clinical Testing and Analysis; 2) Basic Veterinary Science; 3) Animal Care; 4) Veterinary Clinical and Hospital Management; and 5) Animal Husbandry.

These five content areas relate directly to the field of animal science and can be used to categorize most occupational preparation programs in this field. However, students in these programs often elect or are required to take courses in subjects such as English, mathematics, science, social studies, and physical education which are available to all students.

The concept of content areas is used in this planning guide because different instructional content areas usually call for different kinds of instructional facilities and equipment. The following content areas which usually call for specialized instructional areas are used in this guide.

- Clinical Testing and Analysis
- Basic Veterinary Science
- Animal Care
- Veterinary Clinical and Hospital Management
- Animal Husbandry
- Academic
- Science
- Foreign Language
- Physical Education
- Other (used when a course or unit to be offered does not fit in any of the above content areas)
PLANNING INSTRUCTIONAL AREAS BY MODES OF LEARNING

The planning of instructional areas for occupational preparation facilities can be substantially aided through utilization of the concept of modes of learning. Learning can be divided into three distinct modes--reaction learning, interaction learning, and action learning.

Reaction learning, which usually occurs in an instructional area designed for lecture and demonstration, is characterized by activities which tend to be largely teacher-centered with the central focus on instruction. Student activities include listening, observing, and the taking of notes. Group size may vary from one to a very large number as the number of students has little effect on the learning experience if proper technological aids such as television, microphones, projectors and the like are used. Because student activities are relatively passive in reaction learning, a short optimum time span is normally employed.

Lecture/demonstration areas can be used commonly for reaction learning in all subject areas. In many instances, lecture/demonstration areas can be shared not only by occupational preparation programs within vocational service areas such as animal science and dairy production. Where a great deal of facility sharing is planned, the planner should consider the optimal location within the total building and the advisability of clustering various instructional areas.

Interaction learning, which usually occurs in a seminar instructional area, is characterized by both teacher and learner activity participating as both listener and speaker. This mode of learning, of course, must occur in groups; however, sociological research suggests these groups should not exceed 15 persons for optimal effectiveness. Active interaction of all students generally requires a longer time span than reaction learning.

Seminar areas, like lecture/demonstration areas, are usually designed for common use by all subject areas. The same considerations which were outlined for lecture/demonstration areas also apply to seminar areas.

Action learning, which usually occurs in a laboratory instructional area, allows the individual student to learn by doing. Students learn on an individual basis, but may, nevertheless function in a group setting. Often in more flexible educational programs, students are scheduled for laboratory work on an individual basis. Since action learning involves overt action by individual students, the teacher's role is largely that of a consultant to the learner.

Laboratory areas, of necessity, are more specialized than lecture/demonstration areas used for reaction learning and seminar areas used for interaction learning. Since laboratory areas are designed to facilitate the learning of specific vocational and technical skills, there is less likelihood of sharing such areas by students in various vocational training programs. However, wherever common elements of skill instruction are found among
vocational training programs, the possibility of sharing and clustering laboratory facilities can be both expedient and economical.

SPECIALIZED AND MULTI-USE OF INSTRUCTIONAL AREAS

The relative amounts of time to be spent by students in a given vocational program in reaction, interaction, and action learning has definite implications for the number and kind of spaces to be provided. These time considerations combined with decisions on the degree of specialization versus multi-use help determine the nature of facilities required. Since most vocational programs have concentrated on action learning experiences, facilities designed for a particular vocational program have not always provided adequate reaction and interaction facilities because of the limited utilization of such spaces. One space is often used for all instruction in an occupational preparation program. However, if the learning activities in any vocational program are broken down into the modes of learning, it will be noted that reaction and interaction spaces are the same regardless of the vocational area. By providing common reaction and interaction spaces for all vocational programs, the most modern technological aids can be justified which, in most cases, will permit lectures, demonstrations and other group reaction learning experiences for groups larger than typically used in vocational education programs. Not only will group reaction learning be improved, but more time will become available for the professional staff to work with individuals and small groups in interaction and action learning activities.

Scheduling group reaction and interaction learning experiences into specialized facilities permits complete flexibility in the use of the action learning laboratories on an open individualized basis since students would no longer need to be scheduled into the action learning laboratories on a specific class basis. This will permit 100 percent room utilization of the action learning laboratories and also permit the introduction of differentiated staff assignments into vocational education.

The open laboratory concept also permits the planned sharing of certain specialized equipment which may be required by two or more vocational programs.

NOTE: THE FOLLOWING SECTIONS OF THE GUIDE (PAGES 20-45) WILL ASSIST THE PLANNER IN MAKING MATHEMATICAL DETERMINATIONS OF THE NUMBER OF INSTRUCTIONAL AREAS NEEDED TO HOUSE THE DESIRED PROGRAM. IF THE NUMBER OF INSTRUCTIONAL AREAS REQUIRED ARE ALREADY KNOWN, PLANNERS MAY NOW PROCEED TO FORM E, PAGE 47. IF, HOWEVER, MATHEMATICAL DETERMINATIONS ARE TO BE MADE, ALL FORMS SHOULD BE COMPLETED AS ACCURATELY AS POSSIBLE.
Information on each animal science occupational program to be offered is entered on a separate Form A which follows. Directions for completing Form A(s) appear on pages 20 and 21. To assist planners, completed sample Form A(s) are given on pages 22-25. Form A contains data to illustrate a program for training of assistants in veterinarian small animal hospitals. Some other occupational preparation programs commonly offered in the vocational service area of animal science include commercial breeder and producer of research animals, artificial insemination, state or federal meat inspection, industrial or pharmaceutical laboratory technician, laboratory animal care technician, veterinary drug salesman, and animal caretakers.

Form A for each occupational preparation program should be filled out as completely as possible. However, it is realized, for example that an animal science instructor completing Form A may be unaware of time allotments and methods of instruction in other subject areas. If such is the case, the instructor can only supply information on courses within the content areas of animal science.
INSTRUCTIONS FOR COMPLETING FORM A
BASIC PROGRAM INFORMATION

Item 1
Occupational Preparation Program--Enter here the name of the occupational program to be offered, e.g., veterinary large animal assistant, laboratory animal caretaker, etc. Complete a separate Form A for each occupational preparation program to be offered.

Item 2
Yearly Enrollment--Enter here the projected maximum number of students to be enrolled yearly in the program.

Item 3
Nature of Students--Underline all categories which apply to the students to be enrolled in the program.

Item 4
Weeks of Instruction per Year--Enter here the number of weeks per year the school will be open for instruction, e.g., 36 weeks, 52 weeks.

Item 5
Total Weekly Periods or Modules--Enter here the total number of periods or modules (if modular scheduling is to be used) per week available for instructional purposes for each student. Do not count periods or modules scheduled for lunch and other non-instructional purposes.

Column 6
Courses of Instruction--List the courses or units of instruction to be offered either on a required or elective basis for the occupational preparation program.

Column 7
Content Area--Opposite each course of instruction, enter the appropriate content area as presented on page 16.

Column 8
Total Course Enrollment--Opposite each course of instruction enter the projected maximum student enrollment.

Column 9
Maximum Group Size for Reaction Learning--Opposite each course or unit of instruction, enter the maximum group size in number of students for reaction (lecture/demonstration) type learning.
Column 10
*Estimated Weekly Periods or Modules of Reaction Level Learning*—Opposite each course or unit of instruction, enter the estimated number of periods or modules per week to be devoted to reaction learning per student.

Column 11
*Weekly Group-Periods or Modules (Lecture/Demonstration)*—To compute weekly group-periods or modules, divide the entry in Column 8 by the entry in Column 9 and round up to the nearest whole number. Then multiply the whole number by the entry in Column 10.

Column 12
*Maximum Group Size for Interaction Learning*—Opposite each course or unit of instruction, enter the maximum group size in number of students for interaction (seminar) type learning.

Column 13
*Estimated Weekly Periods or Modules of Interaction Level Learning*—Opposite each course or unit of instruction, enter the estimated number of periods or modules per week to be devoted to interaction learning per student.

Column 14
*Weekly Group-Periods or Modules (Seminar)*—To compute weekly group-periods or modules, divide the entry in Column 8 by the entry in Column 12 and round up to the nearest whole number. Then multiply by the entry in Column 13.

Column 15
*Maximum Group Size for Action Learning*—Opposite each course or unit of instruction, enter the maximum group size in number of students for action (laboratory) type learning.

Column 16
*Estimated Weekly Periods or Modules of Action Level Learning*—Opposite each course or unit of instruction, enter the estimated number of periods or modules per week to be devoted to action learning per student.

Column 17
*Weekly Group-Periods or Modules (Laboratory)*—To compute weekly group-periods or modules, divide the entry in Column 8 by the entry in Column 15 and round up to the nearest whole number. Then multiply the whole number by the entry in Column 16.
1. Occupational Preparation Program

2. Yearly Enrollment

3. Nature of Students (underline appropriate categories): a. day school\(^1\); b. night school\(^1\); c. high school; d. post high school; e. adults; f. males; g. females; h. other (specify)

4. Weeks of Instruction per Year

5. Total Weekly Periods or Modules

<table>
<thead>
<tr>
<th>Courses of Instruction</th>
<th>Content Areas</th>
<th>Total Course Enrollment</th>
<th>Maximum Group Sizes, Estimated Weekly Periods or Modules and Calculated Group-Modules or Period-Modules by Levels of Learning</th>
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<td></td>
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<tr>
<td>Animal Physiology</td>
<td>B</td>
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</tr>
<tr>
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<td>Animal Parasitology</td>
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<tr>
<td>Anesthesiology</td>
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<td>80</td>
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<td>Zoonoses Academ.</td>
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</table>

\(^{1}\) If both day and night school are to be offered, fill out separate forms for each.

\(^{2}\) (Lecture/demonstration)

\(^{3}\) (Seminar)

\(^{4}\) (Laboratory)
SAMPLE FORM A (2)
BASIC PROGRAM INFORMATION

1. Occupational Preparation Program: Veterinary Assistant--Small Animal Hospital

2. Yearly Enrollment: 100

3. Nature of Students (underline appropriate categories): a. day school; b. night school; c. high school; d. post high school; e. adults; f. males; g. females; h. other (specify)

4. Weeks of Instruction per Year: 36

5. Total Weekly Periods or Modules: 36

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<th>Content Areas+</th>
<th>Total Course Enrollment</th>
<th>Maximum Group Sizes, Estimated Weekly Periods or Modules and Calculated Group-Modules or Period-Modules by Levels of Learning</th>
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</table>

1: If both day and night school are to be offered, fill out separate forms for each.
+Content Area Codes: A = Clinical Testing & Analysis, B = Basic Veterinary Science, C = Animal Care, D = Clinical & Hospital Management, E = Animal Husbandry, F = Basic Sciences

**(Lecture/demonstration)**

**(Seminar)**

**(Laboratory)**
**1. Occupational Preparation Program**

**2. Yearly Enrollment**

**3. Nature of Students (underline appropriate categories):**  
- **a. day school**
- **b. night school**
- **c. high school**
- **d. post high school**
- **e. adults**
- **f. males**
- **g. females**
- **h. other (specify)**

**4. Weeks of Instruction per Year**

**5. Total Weekly Periods or Modules**

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<th>Total Course Enrollment</th>
<th>Maximum Group Size</th>
<th>Weekly Periods or Modules</th>
<th>Maximum Group Size</th>
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</tbody>
</table>

1 If both day and night school are to be offered, fill out separate forms for each.

1(Lecture/demonstration)

2(Seminar)

3(Laboratory)
SAMPLE FORM A (4)

BASIC PROGRAM INFORMATION

1. Occupational Preparation Program **Veterinary Assistant--Small Animal Hospital**

2. Yearly Enrollment **100**

3. Nature of Students (underline appropriate categories):
   a. day school **1**
   b. night school **1**
   c. high school
   d. post high school
   e. adults
   f. males
   g. females
   h. other (specify)

4. Weeks of Instruction per Year **36**

5. Total Weekly Periods or Modules **35**

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<th>Courses of Instruction</th>
<th>Content Areas*</th>
<th>Total Course Enrollment</th>
<th>Maximum Group Sizes, Estimated Weekly Periods or Modules and Calculated Group-Modules or Period-Modules by Levels of Learning</th>
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<tr>
<td>Genetics</td>
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1. If both day and night school are to be offered, fill out separate forms for each.

*Content Area Codes: A = Clinical Testing & Analysis
   B = Basic Veterinary Science
   C = Animal Care
   D = Clinical & Hospital Management
   E = Animal Husbandry
   F = Basic Sciences

** (Lecture/demonstration)
*** (Seminar)
**** (Laboratory)
1. Occupational Preparation Program

2. Yearly Enrollment

3. Nature of Students (underline appropriate categories): a. day school; b. night school; c. high school; d. post high school; e. adults; f. males; g. females; h. other (specify)

4. Weeks of Instruction per Year

5. Total Weekly Periods or Modules

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<tr>
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\(1\) If both day and night school are to be offered, fill out separate forms for each.

\(\text{\textsuperscript{\textast}}} \) (Lecture/demonstration)

\(\text{\textsuperscript{\textdoubleasterisk}}} \) (Seminar)

\(\text{\textsuperscript{\texttripleasterisk}}} \) (Laboratory)
1. Occupational Preparation Program

2. Yearly Enrollment

3. Nature of Students (underline appropriate categories): a. day school; b. night school; c. high school; d. post high school; e. adults; f. males; g. females; h. other (specify)

4. Weeks of Instruction per Year

5. Total Weekly Periods or Modules

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<td>Reaction (Lecture/demonstration)</td>
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1. If both day and night school are to be offered, fill out separate forms for each.
1. Occupational Preparation Program ________________________________________________________________

2. Yearly Enrollment ________________

3. Nature of Students (underline appropriate categories): a. day school\(^1\); b. night school\(^1\); c. high school; d. post high school; e. adults; f. males; g. females; h. other (specify) ______________________

4. Weeks of Instruction per Year ________________

5. Total Weekly Periods or Modules ________________

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<th>Content Areas*</th>
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\(^1\) If both day and night school are to be offered, fill out separate forms for each.

\(^\text{I}(\text{Lecture/demonstration})\)

\(^\text{II}(\text{Seminar})\)

\(^\text{III}(\text{Laboratory})\)
FORM A

BASIC PROGRAM INFORMATION

1. Occupational Preparation Program

2. Yearly Enrollment

3. Nature of Students (underline appropriate categories): a. day school; b. night school; c. high school; d. post high school; e. adults; f. males; g. females; h. other (specify)

4. Weeks of Instruction per Year

5. Total Weekly Periods or Modules

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1. If both day and night school are to be offered, fill out separate forms for each.

^ (Lecture/demonstration)

^^^ (Seminar)

^^^^ (Laboratory)
**FORM A**

**BASIC PROGRAM INFORMATION**

1. Occupational Preparation Program ________________________________

2. Yearly Enrollment ________________________________

3. Nature of Students (underline appropriate categories): a. day school\(^1\); b. night school\(^1\); c. high school; d. post high school; e. adults; f. males; g. females; h. other (specify) ________________________________

4. Weeks of Instruction per Year ________________________________

5. Total Weekly Periods or Modules ________________________________

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</tbody>
</table>

\(^1\)If both day and night school are to be offered, fill out separate forms for each.

\(^{**}\)(Lecture/demonstration)

\(^{***}\)(Seminar)

\(^{****}\)(Laboratory)
1. Occupational Preparation Program

2. Yearly Enrollment

3. Nature of Students (underline appropriate categories): a. day school\(^1\); b. night school\(^1\); c. high school; d. post high school; e. adults; f. males; g. females; h. other (specify)

4. Weeks of Instruction per Year

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</table>

\(^1\) If both day and night school are to be offered, fill out separate forms for each.

\(^{\#}\)(Lecture/demonstration)

\(^{\##}\)(Seminar)

\(^{\###}\)(Laboratory)
1. Occupational Preparation Program

2. Yearly Enrollment

3. Nature of Students (underline appropriate categories): a. day school; b. night school; c. high school; d. post high school; e. adults; f. males; g. females; h. other (specify)

4. Weeks of Instruction per Year

5. Total Weekly Periods or Modules

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<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>REACTION</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Maximum Group Size</td>
</tr>
</tbody>
</table>

1If both day and night school are to be offered, fill out separate forms for each.

**'(Lecture/demonstration)

**(Seminar)

***(Laboratory)
PART III

DISTINCT TYPES OF INSTRUCTIONAL AREAS TO BE PROVIDED

QUANTITATIVE FACILITY NEEDS

The number of instructional areas to house the programs described in Part II (The Instructional Program) are recorded in this section of the guide.

As indicated in Part II, there are three principal types of instructional areas used to accommodate educational programs. They are:

- Lecture/demonstration areas which are used principally for group reaction learning;
- Seminar areas which are used principally for group interaction learning; and
- Laboratory areas which are used principally for group or individual action learning.

In addition to these instructional areas, there are, of course, other school-wide auxiliary areas such as instructional materials centers, language laboratories, gymnasiums, and auditoriums which are part of the overall school plan. Requirements for such facilities are calculated as a part of total school planning and are not made in this guide.

It is recommended that facility needs, including those for occupational preparation programs in animal science, be made on a school-wide basis in order to provide planners with a balanced picture of the building to be constructed and to promote more economy and convenience through the sharing and clustering of various kinds of facilities and equipment.
Forms B, C and D can be used to compute the number of lecture/demonstration, seminar, and laboratory areas required, respectively, for the planned programs in animal science occupational preparation. The use of these forms requires some mathematical ability. Personnel responsible for completing the guide may want to utilize the services of individuals with this special competence.

Results of the computations on Forms B, C and D are entered on Form E which is a summary of total instructional area requirements for animal science occupational preparation programs.

In the event that instructional area requirements are already determined (e.g., it has been decided that one combination laboratory and lecture/demonstration area will be provided) the information can be recorded directly on Form E without making the computations on Forms B, C and D.

It is strongly recommended that appropriate personnel be utilized to ensure that the number of instructional areas meets program requirements. After the number of each type of instructional area is determined and recorded on Form E, information can then be recorded in the following sections of the guide concerning the nature of these instructional areas.
**INSTRUCTIONS FOR COMPLETING FORM B**

**LECTURE/Demonstration Area Requirements by Content Areas**

<table>
<thead>
<tr>
<th>Column 1</th>
<th>Content Area--Content areas are listed in Column 1.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Column 2</td>
<td>Total Enrollment--To obtain total enrollment for content areas, find the total enrollment for each content area as indicated in Columns 7 and 8 of Form A(s) for all occupational preparation programs.</td>
</tr>
<tr>
<td>Column 3</td>
<td>Maximum Group Size--Opposite each content area, enter the maximum group size desired for a lecture/demonstration area to serve the content area (Form A, Column 9).</td>
</tr>
<tr>
<td>Column 4</td>
<td>Total Weekly Periods or Modules--Opposite each content area, enter the total periods or modules per week the school will be open for day school instruction. This entry will be identical for all content areas and identical to the number recorded for Item 5, Form A.</td>
</tr>
<tr>
<td>Column 5</td>
<td>Total Weekly Reaction Group Periods or Modules--Opposite each content area, enter the total group periods or modules per week to be devoted to reaction learning as indicated in Column 11 of Form A(s) for all occupational preparation programs.</td>
</tr>
<tr>
<td>Column 6</td>
<td>Lecture/Demonstration Areas Required--Opposite each content area, enter the quotient of Item 5 divided by Item 4. Round up to the nearest hundredth.</td>
</tr>
<tr>
<td>Column 7</td>
<td>Adjusted Lecture/Demonstration Areas Required--To adjust for scheduling difficulties which result in areas being less than 100 percent utilized, multiply the entry in Column 6 by 1.3 and enter the result, rounded up to the nearest hundredth, in Column 7 for each content area.</td>
</tr>
<tr>
<td>Column 8</td>
<td>Totals--Since lecture/demonstration areas, unlike laboratory areas, can be utilized by nearly all content areas, the entries in Column 7 can be added for all lecture/demonstration areas with identical maximum group sizes as entered in Column 3. For example, 8a might read 2 lecture/demonstration areas with a student capacity of 50 each.</td>
</tr>
</tbody>
</table>
## SAMPLE FORM B

**LECTURE/Demonstration Area Requirements by Content Areas**

<table>
<thead>
<tr>
<th>Content Area</th>
<th>Total Enrollment</th>
<th>Maximum Group Size</th>
<th>Total Weekly Periods or Modules</th>
<th>Total Weekly Reaction Group-Periods or Modules</th>
<th>Lecture/Demonstration Areas Required (5) ÷ (4)</th>
<th>Adjusted Lecture/Demonstration Areas Required (6) x 1.3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Clinical Testing, Analysis--Code A</td>
<td>240</td>
<td>100</td>
<td>35</td>
<td>9</td>
<td>.26</td>
<td>.34</td>
</tr>
<tr>
<td>Basic Veterinary Science--Code B</td>
<td>160</td>
<td>100</td>
<td>35</td>
<td>8</td>
<td>.23</td>
<td>.30</td>
</tr>
<tr>
<td>Animal Care--Code C</td>
<td>160</td>
<td>60</td>
<td>35</td>
<td>7</td>
<td>.23</td>
<td>.26</td>
</tr>
<tr>
<td>Clinical, Hospital Management--Code D</td>
<td>180</td>
<td>100</td>
<td>35</td>
<td>8</td>
<td>.23</td>
<td>.30</td>
</tr>
<tr>
<td>Animal Husbandry--Code E</td>
<td>260</td>
<td>60</td>
<td>35</td>
<td>10</td>
<td>.29</td>
<td>.38</td>
</tr>
<tr>
<td>Basic Sciences--Code F</td>
<td>240</td>
<td>100</td>
<td>35</td>
<td>8</td>
<td>.23</td>
<td>.30</td>
</tr>
<tr>
<td>Academic</td>
<td>320</td>
<td>100</td>
<td>35</td>
<td>11</td>
<td>.32</td>
<td>.42</td>
</tr>
<tr>
<td>Physical Education</td>
<td>120</td>
<td>--</td>
<td>35</td>
<td>--</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td>Other (specify)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

(8) Totals (Figures in Column 7 can be added together for areas with same student capacity as entered in Column 3.) Round off total to next higher whole number.

a. _______ lecture/demonstration areas with a student capacity of ________, each.

b. _______ lecture/demonstration areas with a student capacity of ________, each.

c. _______ lecture/demonstration areas with a student capacity of ________, each.

d. _______ lecture/demonstration areas with a student capacity of ________, each.
**LECTURE/Demonstration Area Requirements by Content Areas**

<table>
<thead>
<tr>
<th>Content Area</th>
<th>Total Enrollment</th>
<th>Maximum Group Size</th>
<th>Total Weekly Periods or Modules</th>
<th>Total Weekly Reaction Group-Periods or Modules</th>
<th>Lecture/Demonstration Areas Required</th>
<th>Adjusted Lecture/Demonstration Areas Required</th>
</tr>
</thead>
<tbody>
<tr>
<td>(1)</td>
<td>(2)</td>
<td>(3)</td>
<td>(4)</td>
<td>(5)</td>
<td>(6)</td>
<td>(7)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
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</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

(8) Totals (Figures in Column 7 can be added together for areas with same student capacity as entered in Column 3.) Round off total to next higher whole number.

a. _______ lecture/demonstration areas with a student capacity of _______, each.
b. _______ lecture/demonstration areas with a student capacity of _______, each.
c. _______ lecture/demonstration areas with a student capacity of _______, each.
d. _______ lecture/demonstration areas with a student capacity of _______, each.
INSTRUCTIONS FOR COMPLETING FORM C
SEMINAR AREA REQUIREMENTS BY CONTENT AREAS

Column 1
Content Area--Content areas are listed in Column 1.

Column 2
Total Enrollment--To obtain total enrollment for content areas, find the total enrollment for each content area indicated in Column 7 and of Form A(s) for all occupational preparation programs.

Column 3
Maximum Group Size--Opposite each content area, enter the maximum group size desired for a seminar area to serve the content area (Form A, Column 12).

Column 4
Total Weekly Periods or Modules--Opposite each content area, enter the total periods or modules per week the school will be open for day school instruction. This entry will be identical for all content areas and identical to the number recorded for Item 5, Form A.

Column 5
Total Weekly Interaction Group Periods or Modules--Opposite each content area, enter the total group periods or modules per week to be devoted to interaction learning as indicated in Column 14 of Form A(s) for all occupational preparation programs.

Column 6
Seminar Areas Required--Opposite each content area, enter the quotient of Item 5 divided by Item 4. Round up to the nearest hundredth.

Column 7
Adjusted Seminar Areas Required--To adjust for scheduling difficulties which result in areas being less than 100 percent utilized, multiply the entry in Column 6 by 1.3 and enter the result, rounded up to the nearest hundredth, in Column 7 for each content area.

Column 8
Totals--Since seminar areas, unlike laboratory areas, can be commonly utilized by nearly all content areas, the entries in Column 8 can be added for all seminar areas with identical maximum group sizes or entered in Column 3. For example, 8a might read 2 seminar areas with a student capacity of 20 each.
### SAMPLE FORM C

#### SEMINAR AREA REQUIREMENTS BY CONTENT AREAS

<table>
<thead>
<tr>
<th>Content Area</th>
<th>Total Enrollment</th>
<th>Maximum Group Size</th>
<th>Total Weekly Periods or Modules</th>
<th>Total Weekly Interaction Group-Periods or Modules</th>
<th>Seminar Areas Required</th>
<th>Adjusted Seminar Areas Required</th>
</tr>
</thead>
<tbody>
<tr>
<td>Code A Clinical Testing &amp; Analysis</td>
<td>240</td>
<td>35</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Code B Basic Veterinary Science</td>
<td>160</td>
<td>35</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Code C Animal Care</td>
<td>160</td>
<td>35</td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Code D Clinical &amp; Hospital Managmt.</td>
<td>180</td>
<td>35</td>
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</tr>
<tr>
<td>Code F Basic Sciences</td>
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<td>Academic</td>
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<td>Physical Education</td>
<td>120</td>
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</tr>
<tr>
<td>Other (specify)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

(8) Totals (Figures in Column 7 can be added together for areas with same student capacity as entered in Column 3.) Round up total to next higher whole number.

a. ______ seminar areas with a minimum student capacity of ______, each.
b. ______ seminar areas with a minimum student capacity of ______, each.
c. ______ seminar areas with a minimum student capacity of ______, each.
d. ______ seminar areas with a minimum student capacity of ______, each.
| Content Area | Total Enrollment | Maximum Group Size | Total Weekly Periods or Modules | Seminar Areas Required (3) | Adjusted Seminar Areas Required (6) x 1.3 | (7) | (8) Totals (Figures in Column 7 can be added together for areas with same student capacity as entered in Column 3. Round up total to next higher whole number.

a. seminar areas with a minimum student capacity of
b. seminar areas with a minimum student capacity of
c. seminar areas with a minimum student capacity of
d. seminar areas with a minimum student capacity of

| 4 | (4) | (5) | (6) | (7) | (8) |
INSTRUCTIONS FOR COMPLETING FORM D
LABORATORY AREA REQUIREMENTS BY CONTENT AREA

Column 1
Content Area--Content areas are listed in Column 1.

Column 2
Total Enrollment--To obtain total enrollment for content areas, find the total enrollment for each area as indicated in Columns 5 and 6 of Form A for all occupational preparation programs.

Column 3
Maximum Group Size--Opposite each content area, enter the maximum group size desired for a laboratory area to serve the content area (Form A, Column 15).

Column 4
Total Weekly Periods or Modules--Opposite each content area, enter the total periods or modules per week the school will be open for day school instruction. This entry will be identical to the number recorded for Item 5, Form A.

Column 5
Total Weekly Action Group Periods or Modules--Opposite each content area, enter the total group periods or modules per week to be devoted to action learning as indicated in Column 17 of Form A(s) for all occupational preparation programs.

Column 6
Laboratory Areas Required--Opposite each content area, enter the quotient of Item 5 divided by Item 4. Round up to the nearest hundredth.

Column 7
Adjusted Laboratory Areas Required--To adjust for scheduling difficulties which result in areas being less than 100 percent utilized, multiply the entry in Column 6 by 1.3 and enter the result, rounded up to the nearest hundredth, in Column 7, for each content area.
<table>
<thead>
<tr>
<th>Content Area</th>
<th>Code A Clinical Testing &amp; Analysis</th>
<th>Code B Basic Veterinary Science</th>
<th>Code C Veterinary Science</th>
<th>Code D Clinical &amp; Hospital Management</th>
<th>Code E Animal Husbandry</th>
<th>Code F Basic Sciences</th>
<th>Other (Specify)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Enrollment</td>
<td>240</td>
<td>160</td>
<td>160</td>
<td>180</td>
<td>260</td>
<td>240</td>
<td>110</td>
</tr>
<tr>
<td>Maximum Group Size</td>
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<td>20</td>
<td>12</td>
<td>15</td>
<td>20</td>
<td>20</td>
<td>20</td>
</tr>
<tr>
<td>Weekly Periods or Modules</td>
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<td>20</td>
<td>20</td>
<td>20</td>
<td>20</td>
<td>20</td>
<td>20</td>
</tr>
<tr>
<td>Interaction Group-Periods</td>
<td>35</td>
<td>35</td>
<td>35</td>
<td>35</td>
<td>20</td>
<td>35</td>
<td>35</td>
</tr>
<tr>
<td>Total Weekly Interaction</td>
<td>40</td>
<td>40</td>
<td>36</td>
<td>30</td>
<td>20</td>
<td>35</td>
<td>35</td>
</tr>
<tr>
<td>Group-Periods or Modules</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Adjusted Laboratory Areas</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Required (5)</td>
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<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Required (6)</td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Required (7)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note: In addition to the laboratory area requirement, an animal vivarium area is needed to provide laboratory animals for care and management practice and for use as part of the demonstration and teaching exercises in class and laboratory. Use Form "M" as a guide to plan this facility.
## FORM D

### LABORATORY AREA REQUIREMENTS BY CONTENT AREAS

<table>
<thead>
<tr>
<th>Content Area</th>
<th>Total Enrollment</th>
<th>Maximum Group Size</th>
<th>Total Weekly Periods or Modules</th>
<th>Total Weekly Interaction Group-Periods or Modules</th>
<th>Laboratory Areas Required</th>
<th>Adjusted Laboratory Areas Required</th>
</tr>
</thead>
<tbody>
<tr>
<td>(1)</td>
<td>(2)</td>
<td>(3)</td>
<td>(4)</td>
<td>(5)</td>
<td>(6)</td>
<td>(7)</td>
</tr>
</tbody>
</table>

a. ______ laboratory areas with a minimum student capacity of _______, each for ________________.
b. ______ laboratory areas with a minimum student capacity of _______, each for ________________.
c. ______ laboratory areas with a minimum student capacity of _______, each for ________________.
d. ______ laboratory areas with a minimum student capacity of _______, each for ________________.
e. ______ laboratory areas with a minimum student capacity of _______, each for ________________.
f. ______ laboratory areas with a minimum student capacity of _______, each for ________________.
**SAMPLE FORM E**  
**SUMMARY OF FACILITY REQUIREMENTS FOR LABORATORY ANIMAL SCIENCE OCCUPATIONAL PREPARATION PROGRAMS**

<table>
<thead>
<tr>
<th>Instructional Areas</th>
<th>Number Required*</th>
<th>Required Student Capacity</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Calculated+ Forms B, C, D Column 7 (2)</td>
<td>Next Higher Whole Number (3)</td>
</tr>
<tr>
<td>Lecture/Demonstration</td>
<td>1.66</td>
<td>2.00</td>
</tr>
<tr>
<td>Lecture/Demonstration</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lecture/Demonstration</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lecture/Demonstration</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Seminar</td>
<td>0.64</td>
<td>1.00</td>
</tr>
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<td></td>
</tr>
<tr>
<td>Seminar</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Clinical Testing &amp; Anal. Lab</td>
<td>1.48</td>
<td>2.00</td>
</tr>
<tr>
<td>Clinical Testing &amp; Anal. Lab</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Basic Vet. Science Lab</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Animal Care Lab</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Veterinary Clinic &amp; Hospital Management Lab</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Animal Husbandry Lab</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Multi-use areas**

If any of the specialized areas entered above are to be combined as multi-use areas, indicate the combinations desired.

- a. Animal Care Laboratory and Seminar Instructional Area
- b. ___________
- c. ___________
- d. ___________

**Summary of Instructional Area Requirements**

Based on the above entries and any other considerations, summarize the total quantitative instructional area requirements for the planned laboratory animal science program.

*Enter the number of instructional areas needed for each required student capacity. If the calculated number required indicates that an area will be used only sparingly, consideration should be given to sharing instructional areas with other school programs or to providing higher student capacity areas which can be subdivided for instructional purposes.*

*If calculations are not made, enter estimates of needs in Column 3.*
FORM E
SUMMARY OF FACILITY REQUIREMENTS FOR LABORATORY ANIMAL SCIENCE OCCUPATIONAL PREPARATION PROGRAMS

<table>
<thead>
<tr>
<th>Instructional Areas</th>
<th>Number Required*</th>
<th>Required Student Capacity</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Calculated+ Form B, C, D Column 7 (2)</td>
<td>Next Higher Whole Number (3)</td>
</tr>
<tr>
<td>Lecture/Demonstration</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lecture/Demonstration</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lecture/Demonstration</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Seminar</td>
<td></td>
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<tr>
<td>Seminar</td>
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<td></td>
</tr>
<tr>
<td>Clinical Testing &amp; Anal. Lab</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Clinical Testing &amp; Anal. Lab</td>
<td></td>
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<tr>
<td>Basic Vet. Science Lab</td>
<td></td>
<td></td>
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<tr>
<td>Animal Care Lab</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Veterinary Clinic &amp; Hospital Management Lab</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Animal Husbandry Lab</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Multi-use areas
If any of the specialized areas entered above are to be combined as multi-use areas, indicate the combinations desired.

a.  
b.  
c.  
d.  

Summary of Instructional Area Requirements
Based on the above entries and any other considerations, summarize the total quantitative instructional area requirements for the planned laboratory animal science program.

*Enter the number of instructional areas needed for each required student capacity. If the calculated number required indicates that an area will be used only sparingly, consideration should be given to sharing instructional areas with other school programs or to providing higher student capacity areas which can be subdivided for instructional purposes.

+If calculations are not made, enter estimates of needs in Column 3.
QUALITATIVE FACILITY NEEDS

In this section, detailed information on the kind of instructional areas required is recorded. Special forms are included for describing the nature of lecture/demonstration areas, seminar areas, laboratory areas, and auxiliary areas to be provided. For each general type of instructional area required information is sought in the following categories.

1. The relationship of the area to other instructional areas (specialized versus multi-purpose utilization of space).
2. The number of these kinds of areas needed.
3. The activities of students and teachers in the instructional area.
4. The spatial relationships within the area and the area's spatial relationships to other instructional areas and the building as a whole.
5. The instruments, furniture, and equipment required for the area.
6. The environmental factors required for the area.
7. The special utility services required for the area.
8. The minimum space requirements of the area.
FORM F

DESCRIPTION OF LECTURE/Demonstration AREA(S)
TO BE USED PRINCIPALLY FOR GROUP REACTION LEARNING

1 major emphasis
2 some emphasis
3 slight emphasis
N no emphasis

1. The lecture/demonstration area(s) should be planned:
   a. As independent unit(s)  Yes No
   b. In combination with laboratory area(s) (specify) Yes No
   c. In combination with seminar area(s) Yes No
   d. As an area within a single multi-use space Yes No

2. Number of lecture/demonstration areas required for the desired program regardless of student capacity (see Form E).

3. Student and instructor activities in this space. Indicate the extent to which each of the activities listed below will occur.
   a. Listening to lectures  1 2 3 N
   b. Observing demonstrations 1 2 3 N
   c. Taking notes 1 2 3 N
   d. Viewing films, slides, overhead projections, etc. 1 2 3 N
   e. ____________________________ 1 2 3 N
   f. ____________________________ 1 2 3 N

4. Spatial relationships. Indicate the extent to which the lecture/demonstration area(s) should be accessible to the:
   a. Instructional materials center 1 2 3 N
   b. Building entrance 1 2 3 N
   c. Delivery area 1 2 3 N
   d. Animal vivarium 1 2 3 N
   e. Other instructional areas
      1) ____________________________ 1 2 3 N
      2) ____________________________ 1 2 3 N
      3) ____________________________ 1 2 3 N
   f. Other building areas
      1) ____________________________ 1 2 3 N
      2) ____________________________ 1 2 3 N
      3) ____________________________ 1 2 3 N

50
5. Furniture and equipment

a. Student seating
   1) Individual desks and chairs
      a) Number of desks and chairs required
      b) Provision for storage
   2) Permanent-type desk
      a) Number required
      b) Provision for storage
   3) Desk and chair combination
      a) Number required
      b) Provision for storage
   4) Tables and chairs
      a) Number of tables required
      b) Number of chairs required
      c) Provision for storage
   5) Auditorium-type seating
      Number of seats required

b. Stage
   1) Permanent type
   2) Portable type
      The approximate area in square feet desired

b. Sound amplifying system

c. Controls for regulating light intensity

d. Lectern
   1) Permanent type
   2) Portable type
   3) Provision for storage

f. Projection screen
   1) Built-in type
   2) Portable type
   3) Approximate dimensions
   4) Provision for storage

f. Television
   1) Closed circuit
   2) Fixed TV monitors
   3) Movable TV monitors
   4) TV camera
      a) Portable type
      b) Built-in type

h. Other equipment required for lecture/demonstration area(s) are:
   1) ________________________________
   2) ________________________________
   3) ________________________________
   4) ________________________________

6. Environmental factors

*Code: P = Preferred; A = Acceptable; NA = Not Acceptable. This scale is used frequently on the following pages.
FORM F

a. Aesthetic. Factors to be considered in the aesthetic domain are colors, light, style or architecture, design and the like. Indicate any special aesthetic considerations important to the planning of the lecture/demonstration area(s).

b. Aerial. Factors to be considered in this category include air temperature, radiant temperature, relative humidity, and ventilation. Indicate any special considerations important to the planning of the lecture/demonstration area(s).

c. Visual. A properly controlled and balanced visual environment is important. The visual environment affects such things as accuracy in perception, attention to tasks, and speed of performance. Indicate any special factors which should be taken into account in planning the visual environment of the lecture/demonstration area(s).

d. Sonic. Factors to be considered in this category include such things as acoustical requirements and sound systems. Indicate any special consideration important to the planning of the lecture/demonstration area(s).

e. Safety. In planning a school building, safety for students and instructors is of prime concern. Indicate any special safety considerations which have implications for design of the lecture/demonstration area(s).

7. Vertical instructional surfaces

a. Chalkboard
   1) Wall mounted
   2) Number of lineal feet

   Yes No
   P   A   NA
FORM F

3) Portable
4) Provision for storage

b. Tackboard
   Number of lineal feet
   Yes No

c. Pegboard
   Number of lineal feet
   Yes No

8. Special utility services required
   a. Electricity
      1) Projection equipment
      2) Sound amplifying equipment
      3) Electrical needs for other equipment
         (specify)
         a) __________________________
         b) __________________________
         c) __________________________
         d) __________________________
   b. Bottled gas supply (Propane)
   c. Air or oxygen supply
   d. Other utility needs for the lecture/demonstration area
      1) __________________________
      2) __________________________
      3) __________________________
      4) __________________________

9. The minimum space requirement in square feet for each lecture demonstration area (optional)
   ________.
   (The planner should be aware of any state or local regulation or recommendations concerning floor space requirements.)

10. Other important factors to be considered in the planning of the lecture/demonstration area(s) are:

    ______________________________________________________
    ______________________________________________________
    ______________________________________________________
    ______________________________________________________
    ______________________________________________________
    ______________________________________________________
    ______________________________________________________
    ______________________________________________________

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FORM G

DESCRIPTION OF SEMINAR AREA(S)
TO BE USED PRINCIPALLY FOR GROUP INTERACTION LEARNING

1 major emphasis
2 some emphasis
3 slight emphasis
N no emphasis

1. The seminar area(s) should be planned:
   a. As independent unit(s) Yes No
   b. In combination with laboratory area(s) (specify) Yes No
   c. In combination with lecture/demonstration area(s) Yes No
   d. As an area within a single multi-purpose space Yes No

2. The number of seminar area(s) required for the desired program regardless of student capacity (see Form E).

3. Student and instructor activities in this space. Indicate the extent to which each of the activities listed below will occur.
   a. Small group discussing 1 2 3 N
   b. Viewing films, slides, overhead projections, etc. 1 2 3 N
   c. Demonstrating 1 2 3 N
   d. Reporting 1 2 3 N
   e. Working on projects 1 2 3 N
   f. ________________________________ 1 2 3 N
   g. ________________________________ 1 2 3 N

4. Spatial relationships. Indicate the extent to which the seminar area(s) should be accessible to the:
   a. Instructional materials center 1 2 3 N
   b. Building entrance 1 2 3 N
   c. Delivery area 1 2 3 N
   d. Animal vivarium 1 2 3 N
   e. Other instructional areas
      1) ________________________________ 1 2 3 N
      2) ________________________________ 1 2 3 N
      3) ________________________________ 1 2 3 N
   f. Other building areas
      1) ________________________________ 1 2 3 N
      2) ________________________________ 1 2 3 N
      3) ________________________________ 1 2 3 N

5. Furniture and equipment
FORM G

a. Seminar table
   1) Number required
   2) Seating for how many persons
   3) Permanent type
   4) Portable type
   5) Provision for storage

b. Chairs
   1) Number required
   2) Straight-back type
   3) Folding type
   4) Provision for storage

6. Environmental factors
   a. Aesthetic. Factors to be considered in the aesthetic domain are colors, light, style of architecture, design and the like. Indicate any special aesthetic considerations important to the planning of seminar areas.

   b. Aerial. Factors to be considered in this category include air temperature, radiant temperature, relative humidity, and ventilation. Indicate any special considerations important to the planning of the seminar area(s).

   c. Visual. A properly controlled and balanced visual environment is important. The visual environment affects such things as accuracy in perception, attention to tasks, and speed of performance. Indicate any special factors which should be taken into account in planning the visual environment of the seminar area(s).

   d. Sonic. Factors to be considered in this category include such things as acoustical requirements and sound system. Indicate any special considerations important to the planning of the seminar area(s).
e. Safety. In planning a school building, safety for students and instructors is of prime concern. Indicate any special safety considerations which have implications for design of the seminar area(s).

7. Vertical instructional surfaces

a. Chalkboard
   1) Wall mounted
   2) Number of lineal feet
   3) Portable
   4) Provision for storage

b. Tackboard
   Number of lineal feet

c. Pegboard
   Number of lineal feet

8. Special utility services required

a. Electricity
   1) Projection equipment
   2) Sound amplifying equipment
   3) Electrical needs for other equipment (specify)
      a) ___________________________
      b) ___________________________
      c) ___________________________
      d) ___________________________

b. Other utility needs for the seminar area(s)
   1) ___________________________
   2) ___________________________
   3) ___________________________
   4) ___________________________

9. Minimum space requirement in square feet for each seminar area (optional). (The planner should be aware of any state or local regulations or recommendations concerning floor space requirements.)

10. Other important factors to be considered in the planning of the seminar area(s) are:

   ___________________________________________
   ___________________________________________
   ___________________________________________
   ___________________________________________
FORM H

DESCRIPTION OF CLINICAL TESTING AND ANALYSIS LABORATORY AREA(S) TO BE USED PRINCIPALLY FOR ACTION LEARNING

1 major emphasis
2 some emphasis
3 slight emphasis
N no emphasis

1. The clinical testing and analysis laboratory area(s) should be planned:

   a. As independent unit(s)  
      b. In combination with laboratory area(s)  
         (specify)  
      c. In combination with seminar area(s)  
      d. In combination with lecture/demonstration area(s)  
      e. As an area within a single multi-purpose space  

   Yes   No

2. Student capacity required for scheduled activities (see Form E).

3. Student and instructor activities in various space divisions within the clinical testing and analysis laboratory area(s). Indicate the extent to which each activity will occur.

   a. Student laboratory work stations with storage space
      1) Collecting and preparing animal tissues for testing  
         2) Chemical and physical testing of specimens collected  
         3) Reading, interpreting and recording of tests and results  
         4) Preparing histological slides from animal tissues  
         5) Preparing bacteriological slides for staining and reading  
         6) Preparing parasitological slides and specimens for examination  
      
      1  2  3  N

   b. Teacher demonstration-lecture area(s)
      1) Demonstrating the typical prepared biological specimens, slides, and demonstration models  
         2) Demonstrating the preparation and collection of animal tissues for testing  
         3) Lecturing on the theoretical basis of clinical testing  
      
      1  2  3  N

   c. Incubation and drying space
      1) Incubation of bacteriological samples by students  

      1  2  3  N

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<table>
<thead>
<tr>
<th>Area</th>
<th>Activity Description</th>
<th>Emphasis</th>
</tr>
</thead>
<tbody>
<tr>
<td>a.</td>
<td>Incubation of serological samples by students</td>
<td>1 2 3 N</td>
</tr>
<tr>
<td></td>
<td>Drying of histological slides by students</td>
<td>1 2 3 N</td>
</tr>
<tr>
<td>d.</td>
<td>Centrifuge space</td>
<td>1 2 3 N</td>
</tr>
<tr>
<td></td>
<td>Centrifuging of parasitological samples by students</td>
<td>1 2 3 N</td>
</tr>
<tr>
<td></td>
<td>Centrifuging of hemotological samples by students</td>
<td>1 2 3 N</td>
</tr>
<tr>
<td></td>
<td>Centrifuging of urinalysis samples by students</td>
<td>1 2 3 N</td>
</tr>
<tr>
<td>e.</td>
<td>Weighing space</td>
<td>1 2 3 N</td>
</tr>
<tr>
<td></td>
<td>Weighing of chemical samples by students</td>
<td>1 2 3 N</td>
</tr>
<tr>
<td></td>
<td>Weighing of animal tissue and fluid samples by students</td>
<td>1 2 3 N</td>
</tr>
<tr>
<td></td>
<td>Weighing of laboratory animals by students</td>
<td>1 2 3 N</td>
</tr>
<tr>
<td>f.</td>
<td>Gas and electrophoretic monitoring instrument space</td>
<td>1 2 3 N</td>
</tr>
<tr>
<td></td>
<td>Chemical analysis of body tissue and fluids by students</td>
<td>1 2 3 N</td>
</tr>
<tr>
<td>g.</td>
<td>Histological fixing and staining space</td>
<td>1 2 3 N</td>
</tr>
<tr>
<td></td>
<td>Fixing and staining tissues by students manually</td>
<td>1 2 3 N</td>
</tr>
<tr>
<td></td>
<td>Fixing and staining tissues by students with automatic equipment</td>
<td>1 2 3 N</td>
</tr>
<tr>
<td>h.</td>
<td>Storage space for histological specimens</td>
<td>1 2 3 N</td>
</tr>
<tr>
<td></td>
<td>Storage of tissue slides prepared by students</td>
<td>1 2 3 N</td>
</tr>
<tr>
<td></td>
<td>Storage of prepared instructional slides</td>
<td>1 2 3 N</td>
</tr>
<tr>
<td>i.</td>
<td>Space for preparation of bacteriological and serological media</td>
<td>1 2 3 N</td>
</tr>
<tr>
<td></td>
<td>Storing chemicals, media and supplies</td>
<td>1 2 3 N</td>
</tr>
<tr>
<td></td>
<td>Preparing media for clinical testing</td>
<td>1 2 3 N</td>
</tr>
<tr>
<td></td>
<td>Automatic pipetting of media</td>
<td>Yes No</td>
</tr>
<tr>
<td></td>
<td>Area separate from main laboratory</td>
<td></td>
</tr>
<tr>
<td>j.</td>
<td>Space for cleaning and sanitizing glassware used in clinical testing</td>
<td>1 2 3 N</td>
</tr>
<tr>
<td></td>
<td>Washing glassware</td>
<td>1 2 3 N</td>
</tr>
<tr>
<td></td>
<td>Drying glassware</td>
<td>1 2 3 N</td>
</tr>
<tr>
<td></td>
<td>Area separate from main laboratory space</td>
<td>Yes No</td>
</tr>
<tr>
<td>k.</td>
<td>Other space(s) (specify)</td>
<td>1 2 3 N</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1 2 3 N</td>
</tr>
</tbody>
</table>
FORM M

4. Spatial relationships. Indicate the extent to which spaces should be accessible to each other.

a. Within the clinical testing and analysis laboratory area(s)
   Student laboratory work spaces to:
   a) Teacher demonstration-lecture space 1 2 3 N
   b) Incubation and drying space 1 2 3 N
   c) Centrifuge space 1 2 3 N
   d) Weighing space 1 2 3 N
   e) Blood and seriological testing space 1 2 3 N
   f) Histological fixing and staining space 1 2 3 N
   g) Histological specimen storage space 1 2 3 N
   h) Other space(s) (specify) 1 2 3 N

b. Clinical testing and analysis laboratory area(s) to outside related areas to
   1) Instructional materials center 1 2 3 N
   2) Media and chemical preparation room 1 2 3 N
   3) Cleaning and sanitizing of glassware area 1 2 3 N
   4) Sterilizing area 1 2 3 N
   5) Animal vivarium 1 2 3 N
   6) Necropsy area 1 2 3 N
   7) Student locker and restroom 1 2 3 N
   8) Building entrance 1 2 3 N
   9) Delivery area 1 2 3 N
   10) Other instructional areas 1 2 3 N
   11) Other building areas (specify) 1 2 3 N
      a) ________________________________
      b) ________________________________

5. Furniture and equipment

a. Teacher demonstration-lecture table
   1) Provision for storage Yes No
   2) Provision for gas outlets Yes No
   3) Provision for electric outlets Yes No
   4) Provision for water supply Yes No
   5) Provision for sink Yes No
   6) Bacteriological hood Yes No
   7) Flourescent antibody scope Yes No
   8) Other provisions (specify)
      a) ________________________________
      b) ________________________________
### FORM H

**b. Student laboratory work table**

<table>
<thead>
<tr>
<th>Number required</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>1) Provision for storage</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>2) Provision for gas outlets</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>3) Provision for electric outlets</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>4) Provisions for water supply</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>5) Provisions for sink</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>6) Adjustable chair at student work tables</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>7) Other provisions (specify)</td>
<td>a) Yes</td>
<td>No</td>
</tr>
<tr>
<td></td>
<td>b) Yes</td>
<td>No</td>
</tr>
</tbody>
</table>

**c. Incubation equipment**

- Bacteriological incubator

<table>
<thead>
<tr>
<th>Number required</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
</table>

**d. Drying equipment (histological slides)**

<table>
<thead>
<tr>
<th>Number required</th>
<th>P</th>
<th>A</th>
<th>NA</th>
</tr>
</thead>
</table>

**e. Centrifuge equipment**

<table>
<thead>
<tr>
<th>Number required</th>
<th>P</th>
<th>A</th>
<th>NA</th>
</tr>
</thead>
</table>

**f. Weighing equipment**

<table>
<thead>
<tr>
<th>Number needed</th>
<th>P</th>
<th>A</th>
<th>NA</th>
</tr>
</thead>
</table>

**g. Blood and serological testing instruments**

<table>
<thead>
<tr>
<th>Number required</th>
<th>P</th>
<th>A</th>
<th>NA</th>
</tr>
</thead>
</table>

**h. Histological fixing and staining equipment**

<table>
<thead>
<tr>
<th>Number required</th>
<th>P</th>
<th>A</th>
<th>NA</th>
</tr>
</thead>
</table>

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FORM H

Number required
5) Paraffin melting oven
Number required

i. Mounted specimen and slide storage furniture
   1) Microscopic tissue slide cabinet (student prepared)
      Yes No
   2) Microscopic slide cabinet (teacher demonstration)
      Yes No
   3) Mounted specimen storage cabinet
      Yes No

j. Bacteriological and serological media preparation and refrigeration equipment
   1) Storage cabinets
      Size and/or number needed
      Yes No
   2) Automatic pipetter
      Yes No
   3) Media preparation counter space
      Linear feet

k. Glassware cleaning and sanitizing equipment
   1) Automatic glassware washer
      Yes No
   2) Glassware dryer
      Yes No
   3) Sink for handwashing of glassware, etc.
      Yes No
   4) Pipette washer and dryer
      Yes No
   5) Storage cabinets for glassware
      Size and/or number needed

l. Other equipment required for clinical testing and analysis laboratory area(s)
   are:
   1) 
   2) 
   3) 
   4) 

6. Environmental factors

a. Aesthetic. Factors to be considered in the aesthetic domain are colors, light, style of architecture, design and the like. Indicate any special aesthetic considerations important to the planning of the clinical testing and analysis laboratory area(s).

b. Aerial. Factors to be considered in this category include air temperature, radiant temperature, relative humidity, and ventilation. Indicate any special considerations important to the planning of the clinical testing and analysis laboratory area(s).
FORM H

C. Visual. A properly controlled and balanced visual environment is important. The visual environment affects such things as accuracy in perception, attention to tasks, and speed of performance. Indicate any special factors which should be taken into account in planning the visual environment of the clinical testing and analysis laboratory area(s).

D. Safety. In planning school buildings, safety for students and instructors is of prime concern. Indicate any special safety considerations which have implications for the clinical testing and analysis laboratory area(s).

E. Sonic. Factors to be considered in this category include such things as acoustical requirements and sound systems. Indicate any special considerations important to the planning of the clinical testing and analysis laboratory area(s).

7. Vertical instructional surfaces
   a. Chalkboard
      1) Wall mounted
         Number of lineal feet
         P A NA
      2) Portable
         a) Number of lineal feet
         Yes No
         b) Provision for storage
      c. Tackboard
         Number of lineal feet
         Yes No
      d. Pegboard
         Number of lineal feet
      e. Permanent projection screen
         P A NA

8. Special utility services required
   a. Electricity
      1) 110V AC
      Yes I
      2) 220V AC
      Yes No
      3) Special lighting requirements (specify)
         a)
         b)
         c)
         d)
FORM H

4) Electrical needs for other equipment (specify)
   a) ________________________________
   b) ________________________________
   c) ________________________________
   d) ________________________________

b. Gas
   1) Instructor and student work table outlets
   2) Other equipment using natural gas
      a) ________________________________
      b) ________________________________

   3) Yes
      4) No

c. Water
   1) Sinks
   2) Garbage disposer
   3) Supplied to distiller apparatus
   4) Other (specify)

9. Minimum space requirements in square feet

   a. Floor area in square feet for entire clinical testing and analysis laboratory area(s)

   b. If distinct space divisions are desired according to function, give minimum floor area requirements in square feet for each of the following areas if included in desired program.
      1) Student laboratory work area
      2) Teacher demonstration-lecture area
      3) Incubation and drying area
      4) Centrifuge area
      5) Weighing area
      6) Blood and serological testing area
      7) Histological fixing and staining area
      8) Histological specimen storage area
      9) ________________________________
      10) ________________________________

   c. If distinct divisions are desired as separate space from main laboratory area, give minimum floor area requirements in square feet for each of the following areas if included in desired program.
      1) Bacteriological and serological preparation and refrigeration area
      2) Glassware cleaning and sanitizing area
      3) ________________________________

10. Other important factors to be considered in the planning of the clinical testing and analysis laboratory area(s) are:

   ________________________________
   ________________________________
   ________________________________
FORM I

DESCRIPTION OF BASIC VETERINARY SCIENCES LABORATORY AREA(S)
TO BE USED PRINCIPALLY FOR ACTION LEARNING

1 major emphasis
2 some emphasis
3 slight emphasis
N no emphasis

1. The basic veterinary sciences laboratory area(s) should be planned:

   a. As independent unit(s)                                               Yes  No
   b. In combination with laboratory area(s) (specify)                   Yes  No
   c. In combination with seminar area(s)                                Yes  No
   d. In combination with lecture/demonstration area(s)                 Yes  No
   e. As an area within a single multi-purpose space                     Yes  No

2. Student capacity required for scheduled activities (see Form E).

3. Student and instructor activities in various space divisions within the basic veterinary sciences laboratory area(s). Indicate the extent to which each activity will occur.

   a. Student laboratory work stations with storage space
      1) Dissection of specially prepared animal cadavers 1 2 3 N
      2) Microscopic study of normal animal tissue        1 2 3 N
      3) Study of physiological functions in live and/or anesthetized animals 1 2 3 N
      4) Physiological tests (chemical) on animal body fluids 1 2 3 N
      5) Necropsy of small laboratory animals 1 2 3 N
      6) Microscopic study of pathological animal tissues 1 2 3 N
      7) Removal of animal tissue specimens for clinical testing 1 2 3 N
   b. Teacher demonstration-lecture space
      1) Demonstrating the typical prepared biological specimens, microscopic slides, and demonstration models 1 2 3 N
      2) Demonstrating the preparation and collection of pathological animal tissues for further diagnosis 1 2 3 N
      3) Lecturing on the applied basis of anatomy and histology 1 2 3 N
      4) Lecturing on the applied basis of physiology 1 2 3 N
FORM I

5) Lecturing on the applied basis of pathology 1 2 3 N

c. Large animal necropsy space
1) Necropsy of dead or diseased sacrificed animals 1 2 3 N
2) Refrigerated storage of cadavers and/or tissue specimens for further study or testing 1 2 3 N
3) Area separate from main laboratory space Yes No

d. Physiological monitoring space
1) Electronic and graphic monitoring of basic physiological parameters 1 2 3 N
2) Graphic measurement of basal metabolic rate 1 2 3 N
3) Demonstration of separation of colloids and crystalloids as occurs in animal tissues 1 2 3 N

e. Skeleton and museum exhibit space
1) Demonstration of comparative anatomy of various animal species 1 2 3 N
2) Demonstration of various gross pathological specimens 1 2 3 N

f. Prepared histological specimen storage space 1 2 3 N

g. Student equipment and instrument clean-up space
1) Washing and drying of dissection trays, necropsy boards (small animals) and instruments 1 2 3 N
2) Flushing animal cadavers of blood for better observation and study 1 2 3 N
3) Storage of student work trays, necropsy boards, and other instructional equipment 1 2 3 N

h. Other space(s) (specify)
1) ________________________________ 1 2 3 N
2) ________________________________ 1 2 3 N
3) ________________________________ 1 2 3 N

4. Spatial relationships. Indicate the extent to which spaces should be accessible to each other.

a. Within the basic veterinary sciences laboratory area(s)
Student laboratory workspaces to:
  a) Teacher demonstration-lecture space 1 2 3 N
  b) Large animal necropsy space 1 2 3 N
FORM I

1 major emphasis
2 some emphasis
3 slight emphasis
N no emphasis

c) Physiological monitoring space
   1 2 3 N

d) Skeleton and museum exhibit space
   1 2 3 N

e) Prepared histological specimen storage space
   1 2 3 N

f) Student equipment and instrument clean-up space
   1 2 3 N

g) Other space(s) (specify)
   1 2 3 N

b. Basic veterinary sciences laboratory area(s) to outside related areas:
   1) Clinical testing and analysis laboratory
   1 2 3 N

   2) Instructional materials center
   1 2 3 N

   3) Cleaning and sanitizing of glassware area
   1 2 3 N

   4) Sterilization area
   1 2 3 N

   5) Animal vivarium
   1 2 3 N

   6) Student locker and restroom
   1 2 3 N

   7) Building entrance
   1 2 3 N

   8) Delivery area
   1 2 3 N

   9) Other instructional areas
   1 2 3 N

10) Necropsy unloading ramp area
   1 2 3 N

11) Other building areas (specify)
    a)                      
    b)                      
   1 2 3 N

5. Furniture and equipment

a. Teacher-demonstration-lecture table
   P A NA

   1) Provision for storage
      Yes No

   2) Provision for gas outlets
      Yes No

   3) Provision for electrical outlets
      Yes No

   4) Provision for water supply
      Yes No

   5) Provision for sink
      Yes No

   6) Other provisions (specify)
      a) Yes No
      b) Yes No

b. Student laboratory work table
   P A NA

   1) Number required
      Yes No

   2) Provision for storage
      Yes No

   3) Provision for gas outlets
      Yes No

   4) Provision for electrical outlets
      Yes No

   5) Provision for water supply
      Yes No

   6) Provisions for sink
      Yes No

   7) Adjustable chairs at student work tables
      Yes No

   8) Other provisions (specify)
      a) Yes No
      b) Yes No

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c. Equipment for large animal necropsy area

1) Hydraulic adjustable necropsy table
   Number required
   Yes No
2) Electrically operated overhead hoist
   Number required
   Yes No
3) Walk in refrigerator box or room
   Specify size or capacity
   Yes No
4) Counter work table with water utility, sink and drainboard
   Lineal feet required
   Yes No
5) Knife sharpening hone
   Number required
   Yes No
6) Band saw
   Yes No
7) Necropsy equipment storage cabinet
   Yes No
8) Water hose station
   a) Number needed
   b) Cold water
   c) Warm water
   d) Steam
   Yes No

   d. Physiological monitoring equipment
   1) Physiograph machine
      Number required
      Yes No
   2) Basal metabolism apparatus
      Yes No
   3) Multiple dialyzing instrument
      Yes No

   e. Furniture for exhibit of skeletons and museum specimens
   1) Glass cased cabinets
      Lineal feet required
      Yes No
   2) Open shelving
      Lineal feet required
      Yes No
   3) Closed cabinets
      Lineal feet required
      Yes No

   f. Furniture for histological slide storage
   Cabinet-tray type storage
   Number cabinets needed
   Yes No

   g. Clean-up area equipment
   Two compartment sink with drainboard
   a) Number required
   b) Hot and cold water utility
   Yes No

   h. Instructional equipment storage provision
   i. Other equipment required for the basic veterinary sciences laboratory area(s)
      are:

6. Environmental factors

   a. Aesthetic. Factors to be considered in the aesthetic domain are colors, light, style or architecture, design and the like. Indicate any special aesthetic
FORM I

considerations important to the planning of the basic veterinary sciences laboratory area(s).

b. Aerial. Factors to be considered in this category include air temperature, radiant temperature, relative humidity, and ventilation. Indicate any special considerations important to the planning of the basic veterinary sciences laboratory area(s).

c. Visual. A properly controlled and balanced visual environment is important. The visual environment affects such things as accuracy in perception, attention to tasks, and speed of performance. Indicate any special factors which should be taken into account in planning the visual environment of the basic veterinary sciences laboratory area(s).

d. Sonic. Factors to be considered in this category include such things as acoustical requirements and sound systems. Indicate any special consideration important to the planning of the lecture/demonstration area(s).

e. Safety. In planning school buildings, safety for students and instructors is of prime concern. Indicate any special safety considerations which have implications for the basic veterinary sciences laboratory area(s).

7. Vertical instructional surfaces

   a. Chalkboard
      1) Wall mounted
         Number of lineal feet
      2) Portable
         a) Number of lineal feet
         b) Provision for storage
   b. Tackboard
      Number of lineal feet
   c. Pegboard
      Number of lineal feet
   d. Permanent projection screen

   Yes  No
   P  A  NA
   P  A  NA
   Yes  No
   Yes  No
   Yes  No

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8. Special utility services required

a. Electricity
   1) 110V AC
   2) 220V AC
   3) Special lighting requirements
      (specify)
         a) ____________________________
         b) ____________________________
         c) ____________________________
         d) ____________________________
   4) Electrical needs for other equipment
      (specify)
         a) ____________________________
         b) ____________________________
         c) ____________________________
         d) ____________________________

b. Gas
   1) Instructor demonstrator-lecture table
      outlets
   2) Other equipment using gas
      a) ____________________________
      b) ____________________________

c. Water
   1) Sinks
   2) Hose stations--necropsy area
   3) Other (specify)

b. Closed circuit television outlet
   Number required __________________

9. Minimum space requirements in square feet

a. Floor area in square feet for entire
   basic veterinary sciences laboratory
   area(s)

b. If distinct space divisions are desired
   according to function, give minimum floor
   area requirements in square feet for each
   of the following areas if included in
   desired program:
   1) Student laboratory work area
   2) Teacher demonstration-lecture area
   3) Large animal necropsy area
   4) Physiological monitoring area
   5) Skeleton and museum exhibit area
   6) Histological specimen storage area
   7) Student equipment and instrument
      clean-up area

9) ____________________________

   c. If distinct divisions are desired as
      separate space from main laboratory area,
      give minimum floor area requirements in

69
square feet for each of the following areas if included in desired program.

1) Large animal necropsy area
2) Cadaver and specimen refrigerated area
3) ____________________________

10. Other important factors to be considered in the planning of the basic veterinary sciences laboratory area(s) are:

____________________________________________________________________
____________________________________________________________________
____________________________________________________________________
____________________________________________________________________
____________________________________________________________________

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FORM J

DESCRIPTION OF ANIMAL CARE LABORATORY AREA(S)
TO BE USED PRINCIPALLY FOR ACTION LEARNING

1 major emphasis
2 some emphasis
3 slight emphasis
N no emphasis

1. The animal care laboratory area(s) should be planned:
   a. As independent unit(s) ____________________________ Yes No
   b. In combination with laboratory area(s) _______ (specify) Yes No
   c. In combination with seminar area(s) ________ Yes No
   d. In combination with lecture/demonstration area(s) __________ Yes No
   e. As an area within a single multi-purpose space __________ Yes No

2. Student capacity required for scheduled activities (see Form E).

3. Student and instructor activities in various space divisions within the animal care laboratory area(s). Indicate the extent to which each activity will occur.
   a. Student laboratory work stations
      1) Practice handling of the small species of laboratory animals to learn humane and efficient restraint and manipulation
      2) Practice learning of sexing the various laboratory animal species
      3) Learning and practicing the routes and techniques of laboratory animal inoculation for research purposes
      4) Learning to do routine physical examinations on laboratory animals
      5) Complete construction of isolator equipment for developing basic proficiencies in axenic and gnotobiotic techniques
      6) Practicing techniques involved in receipt or shipment of laboratory animals
      7) Practicing methods used in identification of the smaller laboratory animals
      8) Learning and practicing various biological tests such as:
         a) Estrus determination by the vaginal swag technique
         b) A-Z pregnancy test procedure
FORM J

1 major emphasis
2 some emphasis
3 slight emphasis
N no emphasis

9) Learning and practicing various specialized laboratory animal research procedures such as:
   a) Intraorbital bleeding (for hematological analysis) 1 2 3 N
   b) Bleeding from the tail (rats and mice) 1 2 3 N
   c) Transference of tumors (tumor implantation) 1 2 3 N
   d) Endocrinectomies 1 2 3 N

10) Learning and practicing the administration of anesthesia to laboratory animals 1 2 3 N

b. Teacher demonstration-lecture area(s)
   1) Lecture presentation and outlining of the techniques and procedures to be practiced by each student in the laboratory 1 2 3 N
   2) Demonstration of the various caging and equipment utilized in the animal care field 1 2 3 N
   3) Demonstration of how to correctly handle and sex all the laboratory animals species 1 2 3 N
   4) Demonstration of instruments and techniques of laboratory animal innoculation 1 2 3 N
   5) Demonstration of records keeping systems for laboratory animals 1 2 3 N
   6) Demonstration of small laboratory animal identification methods 1 2 3 N
   7) Demonstration of the proper methods of carrying out specialized biological tests and bio-medical research procedures 1 2 3 N
   8) Demonstration of anesthetic methods in laboratory animals 1 2 3 N

c. Peripheral multi-purpose work space area(s) (bench type)
   1) Electronic balance weighing of laboratory animals 1 2 3 N
   2) Incubation of eggs for embryological and experimental purposes 1 2 3 N
   3) Preparing and centrifuging specimens from laboratory animals for parasitological examination 1 2 3 N
   4) Preparing and staining of biological tissues, blood, and bacteria from laboratory animals for microscopic examination 1 2 3 N
FORM J

1 major emphasis
2 some emphasis
3 slight emphasis
N no emphasis

5) Examination of external parasites from laboratory animals
6) Refrigeration and/or freezing of biological material for continued or later study
7) Performing microanalysis of blood samples from laboratory animals at location (rather than transferring to the clinical testing laboratory)
8) Steam or boiling water sterilization of surgical instruments
d. Germ-free production and holding area(s)
   1) Derivation of the axenic animal state from the conventional laboratory animal
   2) Rearing and holding of the derived germ-free animal for an extended time
   3) Demonstration of the techniques involved in the feeding, cleaning and caring for axenic animals
   4) Demonstration of the preparation of isolator supplies
   5) Outlining procedures involved in monitoring the germ-free state and problems involved in the shipment of germ-free laboratory animals
   6) Demonstrating experimental procedures completed on germ-free animals from within the axenic isolator
e. Laboratory animal operating and restraint area (for use with larger lab animals--rabbits, dogs, cats, primates)
   1) Demonstration of tattooing for animal identification
   2) Performing and practicing surgical procedures peculiar to laboratory animal research
   3) Restraining and examining animals for evidence of disease or external parasitism
   4) Restraining animals for administration of necessary medications
   5) Restraining primates for tuberculosis testing and bleeding; other species for donor bleeding
   6) Performance of cesarean sections on the larger lab animals (dog, cat, rabbit) to derive germ-free offspring
   7) Demonstration of proper laboratory animal necropsy techniques as performed in biomedical research
   8) Student practice of the necropsy technique
f. Animal care storage space area(s)
   1) Storage of animal caging and allied equipment to be demonstrated 1 2 3 N
   2) Storage of instruments and equipment for lab animal restraint, tattooing, innoculation and medication 1 2 3 N
   3) Storage of chemicals and supplies needed for performing biological tests 1 2 3 N
   4) Storage of miscellaneous equipment and materials needed in assembling and operating the germ-free isolators 1 2 3 N
   5) Storage of surgical instruments--students and instructors 1 2 3 N
   6) Storage of microscopic slides prepared by students in running biological tests 1 2 3 N

4. Spatial relationships. Indicate the extent to which spaces should be accessible to each other.

   a. Within the animal care laboratory area(s)
      Student laboratory work spaces to:
      a) Teacher demonstration-lecture space 1 2 3 N
      b) Peripheral multi-purpose work space 1 2 3 N
      c) Germ free production and holding space 1 2 3 N
      d) Laboratory animal operating and restraint space 1 2 3 N
      e) Animal care storage space 1 2 3 N
      f) Other space(s) (specify) 1 2 3 N

   b. Animal care laboratory area(s) to outside related areas
   1) Clinical testing and analysis laboratory 1 2 3 N
   2) Basic veterinary sciences laboratory 1 2 3 N
   3) Clinical and hospital management laboratory (sterilization area) 1 2 3 N
   4) Cleaning and sanitizing of glassware area 1 2 3 N
   5) Instructional materials center 1 2 3 N
   6) Animal vivarium 1 2 3 N
   7) Student locker and restroom 1 2 3 N
   8) Cage and equipment cleaning area 1 2 3 N
   9) Building entrance 1 2 3 N
  10) Delivery area 1 2 3 N
### FORM J

**1 major emphasis**
**2 some emphasis**
**3 slight emphasis**
**N no emphasis**

11) Other instructional area(s)  
12) Other building areas (specify)  
   a)  
   b)  

#### 5. Furniture and equipment

**a. Student laboratory work table**
1) Movable type  
   2) Stationary type  
   3) Number required  
   4) Size required  
   5) Adjustable chairs at student work  
   table stations  
   Number required  
   6) Other provisions (specify)  
   a)  
   b)  
**b. Teacher demonstration-lecture table**
1) Provision for lecturn  
   2) Movable type  
   3) Stationary type  
   4) Provision for gas outlets  
   5) Provision for electrical outlets  
   6) Provision for water supply and sink  
   7) Size table required  
   8) Provisions for storage  
   9) Other provisions (specify)  
   a)  
   b)  
**c. Peripheral multi-purpose work space**
1) Bench or counter space along wall  
   2) Adjustable height chairs or stools  
   for counter work  
   3) Cabinet storage space overhead and  
   under counter space (for microscope  
   storage, etc.)  
   4) Electronic balance weighing scales--  
   measuring in grams  
   Number required  
   5) Egg incubator and brooder  
   Indicate size or capacity  
   6) Bench type centrifuge (parasitological)  
   Number required  
   7) Sink with drainboard area, including  
   hot and cold water for slide staining  
   and general wash up  
   8) Dissecting microscope  
   Number required
**FORM J**

9) Refrigerator and freezer combination
   Capacity required
      Yes No

10) Analytical scale
    Number required
       Yes No

11) Microhematocrit centrifuge
    Number required
       Yes No

12) Unitest hematological equipment
    Number of units required
       Yes No

13) Boiling water or steam instrument sterilizer
    Number required
       Yes No

14) Microscope
    a) Binocular
    b) Monocular
    c) Number required

**d. Germ free production and holding area**

1) Surgical isolator
   a) Flexible plastic film
   b) Plexiglass
   c) Stainless steel

2) Maintenance isolator
   a) Flexible plastic film
   b) Plexiglass
   c) Stainless steel

3) Laminar flow work table or cabinet for gnotobiote handling

4) Electro-thermoplastic heat sealing machine

5) Isolator transfer sleeves, stainless steel

6) Storage cabinets for axenic equipment, tools, and supplies
   Size of cabinet required

**e. Laboratory animal operating and restraint area**

1) Hydraulic controlled operating table
   a) Stainless steel
   b) Number required

2) Examining and grooming table
   a) Baked enamel
   b) Stainless steel
   c) Number required

3) Autopsy table—with strainers, cold water, source, and drain
   a) Chrome
   b) Stainless steel
   c) Number required

4) Dog, cat, and rabbit tattoo machine

5) Anesthesia and euthanasia chamber (glass)

6) Animal stretcher
   a) Chrome
   b) Stainless steel
   c) Number required
FORM J

7) Instrument stand (operating)
   a) Number required
   b) Stainless steel

f. Animal care storage space area
   1) Storage for animal care cages and equipment
      a) Separate room
         Size needed
      b) Storage cabinets
         Size and/or number required

   2) Instrument and/or drug cabinet
      a) Number required
      b) Size cabinet required
      c) Movable cabinet
      d) Stationary cabinet

   3) Chemical and animal care supplies storage
      a) Separate room
         Size required
      b) Cabinet storage
         Number and/or size required

   g. Other furniture or major equipment needs for the animal care laboratory area(s) are:
      1) ____________________________________________
      2) ____________________________________________
      3) ____________________________________________
      4) ____________________________________________

6. Environmental factors

   a. Aesthetic. Factors to be considered in the aesthetic domain are color, light, style of architecture, design and the like. Indicate any special aesthetic considerations important to the planning of the animal care laboratory area(s).

   ____________________________________________
   ____________________________________________
   ____________________________________________
   ____________________________________________

   b. Aerial. Factors to be considered in this category include air temperature, radiant temperature, relative humidity, and ventilation. Indicate any special considerations important to the planning of the animal care laboratory area(s).

   ____________________________________________
   ____________________________________________
   ____________________________________________
   ____________________________________________

   c. Visual. A properly controlled and balanced visual environment is important. The visual environment affects such things as accuracy in perception, attention to tasks, and speed of performance. Indicate any special factors
FORM J

which should be taken into account in planning the visual environment of the animal care laboratory area(s).

d. Sonic. Factors to be considered in this category include such things as acoustical requirements and sound system. Indicate any special considerations important to the planning of the animal care laboratory area(s).

e. Safety. In planning school buildings, safety for students and instructors is of prime concern. Indicate any special safety considerations which have implications for design of the animal care laboratory area(s).

7. Vertical instructional surfaces

a. Chalkboard
   1) Wall-mounted
      Number of lineal feet
      P A NA
   2) Portable
      a) Number of lineal feet
      b) Provision for storage
      P A NA

b. Tackboard
   Number of lineal feet
   Yes No

c. Pegboard
   Number of lineal feet
   Yes No

d. Permanent projection screen
   Yes No

8. Special utility services required

a. Electricity
   1) 110V AC
   Yes No
   2) 220V AC
   Yes No
   3) Special lighting requirements
      (specify)
      a) __________________________
      b) __________________________
      c) __________________________
   4) Electrical needs for other equipment
      (specify)
      a) __________________________
      b) __________________________
      c) __________________________
      d) __________________________

b. Gas
   1) Peripheral multi-purpose work space
      area outlets
      Yes No
FORM J

2) Other equipment using gas
   a)
   b)

c. Water
   1) Sinks
   2) Connections to necropsy tables
   3) Other (specify)

   d. Closed circuit television outlet
      Number required

9. Minimum floor areas required in square feet

   a. Floor area in square feet for the entire animal care laboratory area(s)

   b. If distinct space divisions are desired according to function, give minimum floor area requirement in square feet for each of the following areas, if included in the desired program.
      1) Student laboratory work station area
      2) Teacher demonstration-lecture area
      3) Peripheral multi-purpose workspace area
      4) Germ free production and holding area
      5) Lab animal operating and restraint area
      6) Animal care storage space area
      7)
      8)

   c. If distinct divisions are desired as separate space from the main laboratory area, give minimum floor area requirements in square feet for each of the following areas, if included in the desired program.
      1) Germ free production and holding area
      2) Animal care storage space area

10. Other pertinent factors to be considered in the planning of the animal care laboratory area(s) are:
DESCRIPTION OF THE VETERINARY CLINICAL AND HOSPITAL MANAGEMENT LABORATORY AREA(S) TO BE USED PRINCIPALLY FOR ACTION LEARNING

1 major emphasis
2 some emphasis
3 slight emphasis
N no emphasis

1. The veterinary clinical and hospital management laboratory area(s) should be planned:

   a. As independent unit(s) [Yes  No]
   b. In combination with [specify] [Laboratory area(s)] [Yes  No]
   c. In combination with lecture/demonstration area(s) [Yes  No]
   d. In combination with seminar area(s) [Yes  No]
   e. As an area within a single multi-purpose space [Yes  No]

2. Student capacity required for scheduled activities (see Form E).

3. Student and instructor activities within the veterinary clinical and hospital management laboratory area(s). Indicate the extent to which each activity will occur.

   a. Reception room area
      1) Reception of client/patients [1 2 3 N]
      2) Helping keep client/patients comfortable while waiting for doctor--keeping them separated [1 2 3 N]
      3) Filing and keeping medical history records on client/patients [1 2 3 N]
      4) Filing and keeping financial records on client/patients [1 2 3 N]
      5) Taking and giving information properly by telephone [1 2 3 N]
      6) Booking hospital or outpatient appointments [1 2 3 N]
      7) Sending out financial statements to clients [1 2 3 N]
      8) Paying hospital operating bills when received [1 2 3 N]
      9) Handling incoming mail and sending out general correspondence [1 2 3 N]
     10) Coordination, via intercommunications system of total hospital and outpatient clinic [1 2 3 N]
     11) Dispensing of various pet supplies or equipment [1 2 3 N]
     12) Admittance of animals to be boarded [1 2 3 N]

   b. Examination and treatment room area
      1) Recording of patient medical history [1 2 3 N]
2) Examination of patients for any sickness or physical abnormality 1 2 3 N
3) Medical treatment of all hospital outpatients 1 2 3 N
4) Admittance to hospital of all patients requiring surgery or hospitalization 1 2 3 N
5) Clipping hair from wounds, tumors, etc. to allow for easier treatment or more specific diagnosis 1 2 3 N
6) Performing skin scrapings and various bacteriological cultures for diagnosis of specific causes of eczema or persistent external body infections 1 2 3 N
7) Performing minor surgery on hospital outpatients 1 2 3 N
8) Writing prescriptions of drugs to be dispensed by the pharmacy for follow-up treatment of patient at home 1 2 3 N
9) Cleaning tartar from animal patient's teeth with dental instruments or the "cavitron" 1 2 3 N
10) Administration of intravenous solutions 1 2 3 N

c. Pharmacy area
1) Mixing and compounding of certain basic or specialized medications 1 2 3 N
2) Dispensing stock drug items as per prescription to clients or treatment room personnel 1 2 3 N
3) Storing, stocking and labeling all drugs in a systematic manner 1 2 3 N
4) Performing periodic and annual inventory of all drugs and pharmaceuticals 1 2 3 N
5) Ordering of drugs so as to maintain a proper stock level and yet gain maximum buying discounts 1 2 3 N
6) Exercising strict security and inventory of all narcotic and narcotic type drugs 1 2 3 N
7) Distillation of tap water for use in compounding liquid drugs 1 2 3 N

d. Sterilization area
1) Washing and drying of clothing and instruments following surgical operations 1 2 3 N
2) Preparing surgical packs and instruments for autoclaving or other sterilization methods 1 2 3 N
3) Autoclaving (steam sterilization) of gowns, surgical packs and instruments 1 2 3 N
### FORM K

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4) Sterilization of equipment by boiling water sterilizer  
5) Dry heat sterilization of equipment and/or supplies  
6) Sterilization of supplies and/or equipment by use of ethylene oxide gas  
7) Storage of sterilized goods and equipment until needed  
8) Storage of stock instruments, washing and cleaning supplies, etc.  

#### e. Surgical preparation area(s)

1) Operator and assistants  
   a) Sanitizing scrub of hands and arms for surgery  
   b) Bathing arms and hands in germicidal solution before donning sterile gowns  
   c) Donning cap, mask, gown and gloves in appropriate order according to aseptic technique  
2) Animal patients  
   a) Clipping hair from operative sites  
   b) Antiseptic soap and water scrub of operative sites  
   c) Ether followed by alcohol scrub of operative sites  
   d) Painting of operative site with an antiseptic solution such as tamed iodine or merthiolate  
   e) Anesthetizing the patient to desired plane for surgery to be performed  
   f) Administration of preanesthetic agents as need indicates  
   g) Manual expression of the patient's bladder to remove any urine present  
   h) Complete body hair clipping of dogs as indicated by breed and contemporary styling  
   i) Administering of enemas to hospital or outpatients when desired  
   j) Administering whirlpool baths to paraplegic animals for therapy  
   k) Weighing pet animals for estimating anesthetic dosage  

#### f. Surgical area

1) Performance of routine surgical operations or procedures by professional instructors  

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FORM K

1 major emphasis
2 some emphasis
3 slight emphasis
N no emphasis

2) Student practice in assisting the operator
3) Use of electrocautery in demonstrating surgical procedures
4) Monitoring and continuation of anesthesia (injectable type anesthetics)
5) Demonstration of electro-anesthesia for surgical procedures
6) Administration of inhalation type anesthetic throughout surgical procedures
7) Administration of suction apparatus during surgical procedures
8) Administration of emergency procedures during surgery, such as oxygen therapy, anesthetic antidotes, etc.
9) Administration of medications or biologicals immediately following surgery
10) Chemical sterilization and storage of catgut and cutting instruments used in surgery
11) Short time storage of sterilized surgical packs, gowns and instruments which are then available for immediate or emergency use
12) Administration of blood transfusion or intravenous electrolyte solutions
13) Closed circuit television or video taping of surgical procedures and assisting for student viewing and study
14) Viewing of radiological films before or during surgery
15) Small group study of surgical assisting methods, techniques and surgical instruments using surgery room black board and surgical instrument display panel cabinet

g. Radiology laboratory area
1) Exposure area
   a) Demonstrating of positioning of patients for variously desired radiograms
   b) Demonstrating proper exposure requirements as to KVP and time settings needed to secure radiograms of diagnostic quality
   c) Student practice in both positioning and taking radiographic
FORM K

1 major emphasis
2 some emphasis
3 slight emphasis
N no emphasis

exposure of different laboratory and pet animals

d) Instruction in the hazards of handling radiological equipment including the monitoring of student exposure with personal radiological monitoring badges

2) Film processing area
a) Developing, fixing, and washing of exposed films
b) Drying and viewing of processed films
c) Identification and storage of processed film
d) Demonstrating proper "safelight" and dark room techniques
e) Demonstrating proper handling of unexposed radiological film, including loading of cassettes
f) Storage of x-ray film processing supplies and miscellaneous equipment

h. Recovery ward
1) Temporary housing of surgical patients for close observation until their recovery from anesthesia
2) Intensive nursing care when needed, such as: oxygen tent, controlled temperature environment, blood or fluid transfusions by continuous I.V. drip, etc.
3) Administering special diets for special surgical cases

4. Spatial relationships. Indicate the extent to which spaces should be accessible to each other.

a. Within the veterinary clinical and hospital management laboratory area(s)
1) Surgical area work space to:
   a) Surgical preparation space
   b) Sterilization space
   c) Radiology lab space
d) Recovery ward space
e) Reception room space
f) Other space(s) (specify)

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FORM K

1 major emphasis
2 some emphasis
3 slight emphasis
N no emphasis

2) Reception room space to:
   a) Examination and treatment room space(s)  
      Two examination rooms desired     P  A  NA
   b) Pharmacy space  
   c) Recovery ward

b. Veterinary clinical and hospital management laboratory area(s) to outside related areas:
   1) Clinical testing and analysis laboratory  
   2) Basic veterinary sciences laboratory  (large animal necropsy space)
   3) Instructional materials center  
   4) Animal vivarium  
   5) Student locker and restroom  
   6) Building entrance  
   7) Delivery area  
   8) Parking area
   9) Other instructional area(s)
   10) Other building areas (specify)

5. Furniture and equipment

   a. Reception room area
      1) Waiting room chairs
         a) Cloth upholstered
         b) Vinyl plastic covered
         c) Number required
      2) Waiting room couch(es) or divan(s)
         a) Vinyl plastic covered
         b) Cloth upholstered
         c) Number required
      3) Receptacle for discarded cigarettes
         and ashes
         Number required
      4) Secretary's desk with typewriter
      5) Filing cabinet(s) (conventional)
         a) Number required
         b) Size desired
      6) Circular file
      7) Dictaphone
      8) Hospital intercom system control board
      9) Two-way radio transmitter and receiver
     10) Message recorder machine (telephone company)
FORM K

11) Table or stand to hold the two-way radio, message recorder, and photocopy machine
   Size table needed
   Yes  No
12) Photocopy machine
   Yes  No
13) Pet supplies rack or display case
   Size desired
   Yes  No
14) End tables
   Number desired
   Yes  No
15) Wall and floor lamps
   Number desired
   Yes  No
16) Magazine racks
   a) Floor type
      Yes  No
   b) Wall type
      P  A  NA
   c) Number required
      P  A  NA
17) Flower planters
   a) Number desired
      Yes  No
   b) Size desired
18) Aquarium
   Size desired
   Yes  No
19) Coffee dispenser
   Yes  No
20) High frequency record player
   Yes  No
21) Coat and hat rack
   a) Wall type
      P  A  NA
   b) Floor type
      P  A  NA
22) Other equipment (specify)
    Yes  No

b. Treatment room area
   1) Wall mounted intercommunications receiver
      Yes  No
   2) Examination and grooming table
      a) Baked enamel
      P  A  NA
      b) Stainless steel
      P  A  NA
   3) Dressing table (to hold all injectable medicines, gauze, tape, disinfectants, etc.
      Size of table required
      Yes  No
   4) Adjustable ceiling mounted examining room light
      Yes  No
   5) Refrigerator-freezer unit
      Capacity required
      Yes  No
   6) Animal clippers with overhead mounted retractable reel
      Yes  No
   7) Wall mounted, electrically operated combination ophthalmoscope-otoscope
      Yes  No
   8) Waste disposal receptacle
      Yes  No
   9) Bard-Parker chemical sterilization jar for cutting instruments
      Yes  No
   10) Syringe sterilizing jar
       Yes  No
   11) Cavitron (ultrasonic dental cleaning instrument)
       Yes  No
   12) Pass-through window to pharmacy
       Yes  No
   13) Pass-through window to reception room
       Yes  No
   14) Foot pedal operated sink, hot and cold water with mixing faucet
       Yes  No

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FORM K

15) Storage cabinet for instruments and medical supplies
   a) Size required
   b) Floor type
   c) Wall type
   c. Pharmacy area
   1) Refrigerator-freezer unit
      Capacity required
      Capacity required
      Yes No
   2) Storage area(s)
      a) Wall shelving (floor to ceiling)
         Lineal feet required
         Yes No
      b) Closed cabinets
         Lineal feet required
         Yes No
      c) Glass door cabinets
         Lineal feet required
         Yes No
      d) Drug stock storage area
         Separate room from the regular drug dispensing area
         Yes No
   3) Double security narcotics locker
   4) Waring blender
   5) Water distiller apparatus and demineralizer
   6) Portable typewriter apparatus for typing drug labels when dispensing
   7) Pass-through window to treatment room(s)
   8) Pass-through window to reception room-secretarial area
   9) Electronic balance scale for weighing in ounces
   10) Analytical scale for weighing in grams and milligrams
   11) Double drain sink with drainboard and mixing faucet
      a) Enamel coated
      b) Stainless steel
      c) Disposal unit included
      d) Spray attachment included
      Yes No
   12) Hot plate with stirring mechanism
      a) One burner
      b) Two burners
      Yes No
   13) Drug inventory file
   14) Intercommunications unit--wall mounted
   15) Other equipment (specify)
      Yes No
   d. Sterilization area
   1) Washing machine
   2) Clothes dryer
   3) Iron and ironing board (or mangle)
   4) Laundry type sink--double drain with drainboard and mixing faucet
   5) Counter work space (for folding gowns, etc.)
      Yes No
**FORM K**

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<tbody>
<tr>
<td>a) Width counter needed</td>
<td></td>
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<td>b) Lineal feet required</td>
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</tbody>
</table>

6) Storage cabinets for laundry supplies  
   Size required  
   Yes No

7) Cleaning and laundry area separate  
   room from rest of sterilization area  
   P A NA

8) Autoclave  
   a) With vacuum exhaust  
   Yes No  
   P A NA
   b) With adapter for ethylene oxide  
   P A NA
   c) Gas sterilization  
   (1) Capacity required  
   (2) Dimensions of door opening  
   Yes No  
   P A NA

9) Foot opening boiling water sterilizer  
   Size required  
   Yes No

10) Storage for sterilized goods  
    a) Wall shelving  
    Yes No  
    P A NA  
    b) Lineal feet required  
    c) Glass door cabinets with shelving  
    Size cabinets required  
    P A NA

11) Reserve instrument storage cabinet  
    Size required  
    Yes No

12) Wall mounted intercommunications unit  
    Yes No

13) Other equipment (specify)  
    e. Surgical preparation area(s)  
    1) Operator and assistant operators  
       a) Foot operated scrub sink, hot and  
       cold water with mixing faucet  
       Number required  
       Yes No
       b) Foot operated surgical soap  
       dispenser  
       Number required  
       Yes No
       c) Autoclavable scrub brush dispenser  
       Number required  
       Yes No
       d) Waste receptacle  
       Yes No  
       e) Arm immersion tank for disinfectant  
       bathing of hands and arms  
       Number required  
       Yes No
       f) Clothes closet for storing surgical  
       caps and face masks  
       Yes No  
       g) Disposable towel dispenser  
       Yes No  
       h) Separate area from animal "prep"  
       area  
       Yes No
    2) Animal "prep" area  
       a) Adjustable (hydraulic) operating  
       table  
       (1) Stainless steel  
       P A NA
       (2) Enamel finish  
       P A NA
       b) Animal clippers with overhead  
       mounted retractable reel  
       P A NA  
       c) Animal bathtub--mounted waist high  
       (1) With stainless steel slotted  
       cover  
       P A NA

---

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FORM K

(2) Drainboard (for soap and water scrub and rinse) with hot and cold water mixing faucet and spray attachment

<table>
<thead>
<tr>
<th></th>
<th>P</th>
<th>A</th>
<th>NA</th>
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<tbody>
<tr>
<td>d)</td>
<td>Whirlpool bath apparatus</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>e)</td>
<td>Shelf type animal scales weighing in ounces and pounds</td>
<td>P</td>
<td>A</td>
</tr>
<tr>
<td>f)</td>
<td>Floor, human type balance scales (for use in weighing animals to determine correct anesthetic dosages)</td>
<td>P</td>
<td>A</td>
</tr>
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<tbody>
<tr>
<td>g)</td>
<td>Storage cabinet(s) for grooming, bathing and enema equipment and supplies (1) Number required (2) Size required</td>
<td>Yes</td>
</tr>
<tr>
<td>h)</td>
<td>Medicine cabinet for syringes and injectable anesthetics and preanesthetics, etc.</td>
<td>Yes</td>
</tr>
<tr>
<td>i)</td>
<td>Waste receptacle</td>
<td>Yes</td>
</tr>
<tr>
<td>j)</td>
<td>Vacuum cleaner (for removing hair as it is clipped from animal)</td>
<td>Yes</td>
</tr>
<tr>
<td>k)</td>
<td>Wall mounted intercommunications unit</td>
<td>Yes</td>
</tr>
<tr>
<td>l)</td>
<td>Animal stretcher (for transporting anesthetized animals)</td>
<td>Yes</td>
</tr>
<tr>
<td>m)</td>
<td>Animal dryer unit</td>
<td>Yes</td>
</tr>
<tr>
<td>n)</td>
<td>Dressing cart (for holding cotton, gauze swabs, alcohol dispenser, other disinfectants, etc.)</td>
<td>Yes</td>
</tr>
<tr>
<td>o)</td>
<td>Small refrigeration unit</td>
<td>Yes</td>
</tr>
<tr>
<td>p)</td>
<td>Other equipment (specify)</td>
<td></td>
</tr>
</tbody>
</table>

f. Surgical area

1) Operating table(s)
   a) Number required | Yes | No
   b) Hydraulic and adjustable | P | A | NA
   c) Enamel finish | P | A | NA
   d) Stainless steel | P | A | NA

2) Surgical lamp(s)
   a) Number required | Yes | No
   b) Floor type | P | A | NA
   c) Ceiling mounted | P | A | NA
   d) Single | P | A | NA
   e) Double | P | A | NA
   f) Adjustable | P | A | NA

3) Kick bucket(s)
   a) Number required | Yes | No
   b) Stainless steel | P | A | NA

4) Glass encased wall cabinets for storing sterilized packs and instruments Lineal feet required
   Yes | No

5) Instrument stand(s)
   Number required |   |   |
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<th></th>
<th>Description</th>
<th>Yes</th>
<th>No</th>
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<tr>
<td>6</td>
<td>Bard-Parker chemical disinfectant tray (for cutting instruments)</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>7</td>
<td>Transfer forceps and sterilizer</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>8</td>
<td>&quot;Blendtome&quot; electrocautery apparatus</td>
<td>Yes</td>
<td>No</td>
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<tr>
<td>9</td>
<td>Inhalation anesthesia machine (Forregger)</td>
<td>Yes</td>
<td>No</td>
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<tr>
<td>10</td>
<td>Oxygen tanks with oxygen administration equipment</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>11</td>
<td>Electro-anesthesia machine</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>12</td>
<td>Suction apparatus</td>
<td>Yes</td>
<td>No</td>
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<tr>
<td>13</td>
<td>Small refrigerator unit (blood storage biologicals, etc.)</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>14</td>
<td>Dressing table, portable</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>15</td>
<td>Radiological film viewer, wall mounted</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>16</td>
<td>Glass enclosed master surgical instrument cabinet (instruments individually hung and identified on pegboard for student viewing and study)</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>17</td>
<td>All tables, walls, equipment and floors to be completely electrically grounded if ether anesthesia is to be included in surgical instruction</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>18</td>
<td>Drug and anesthetic storage cabinet including narcotics locker</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>19</td>
<td>Wall clock</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>20</td>
<td>Wall mounted intercommunications unit</td>
<td>Yes</td>
<td>No</td>
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<tr>
<td>21</td>
<td>Other equipment (specify)</td>
<td>Yes</td>
<td>No</td>
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</table>

**Radiology Laboratory area**

1) **Exposure area--separate from processing lab**
   a) Fixed position x-ray machine and table
      (1) KV potential required  | Yes | No |
      (2) Timing potential required | Yes | No |
      (3) Control box and activating switch mounted in separate area divided by leaded walls and windows | Yes | No |
      (4) Fluoroscopic capability | Yes | No |
      (5) Table equipped with a "Bucky" mechanism | Yes | No |
   b) Wall hangers for leaded protective clothing (aprons and gloves)  
      Number required | Yes | No |
   c) All walls of exposure room completely lined with approved thickness lead shielding  
      If specifications differ from above so indicate | Yes | No |
   d) Pass-through box in wall between exposure room and film processing lab  | Yes | No |
**FORM K**

e) Portable x-ray machine  
   KV potential desired  
   [ ] Yes  
   [ ] No  

f) Wall mounted intercommunications unit  
   [ ] Yes  
   [ ] No  

g) Film identification kit (for use when taking exposures)  
   [ ] Yes  
   [ ] No  

h) Leaded protective aprons  
   Number required  
   [ ] Yes  
   [ ] No  
i) Leaded gloves  
   [ ] Yes  
   [ ] No  
j) Exposure metering devices  
   Number required  
   [ ] Yes  
   [ ] No  
k) Other equipment (specify)  

2) Film processing lab  
   a) Processing tank with drain and ccld-hot water supply with mixing faucet  
      (1) Stainless steel  
      (2) Size required  
      (3) Double tanks for insertion into master tank for holding developer and fixing solutions  
      [ ] Yes  
      [ ] No  
   [ ] P  
   [ ] A  
   [ ] NA  

   b) Processing fluid mixing paddle  
      (1) Stainless steel  
      (2) Chrome  
      [ ] Yes  
      [ ] No  
   [ ] P  
   [ ] A  
   [ ] NA  
   [ ] P  
   [ ] A  
   [ ] NA  

c) Thermometer, stainless steel holder  
   [ ] Yes  
   [ ] No  

d) X-ray film drying cabinet with fan  
   [ ] Yes  
   [ ] No  

e) X-ray film viewer  
   (1) Number of film banks desired  
   (2) Concentrated spot viewer  
   [ ] Yes  
   [ ] No  
   [ ] P  
   [ ] A  
   [ ] NA  

   f) Unexposed film storage bin, light proof  
   [ ] Yes  
   [ ] No  

g) Film trimmer mechanism  
   [ ] Yes  
   [ ] No  

h) Counter workspace  
   Lineal feet required  
   [ ] Yes  
   [ ] No  

i) Under counter storage cabinets for storing cassettes and processing stock solutions  
   Number and size cabinets desired  
   [ ] Yes  
   [ ] No  

j) File cabinet for storing processed film  
   Number and size cabinets desired  
   [ ] Yes  
   [ ] No  
k) "Safelight," wall mounted (controlled by switches so that room lights and viewing boxes can never be turned on simultaneously with "safelight")  
   [ ] Yes  
   [ ] No  

l) Timing clock with alarm mechanism  
   [ ] Yes  
   [ ] No  
m) Wall mounted clock with luminous dial  
   [ ] Yes  
   [ ] No  

n) Wall mounted intercommunications unit  
   [ ] Yes  
   [ ] No  
o) X-ray cassettes  
   (1) Sizes required  
   (2) Number required  
   [ ] Yes  
   [ ] No  

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FORM K

p) X-ray film hangers
   Sizes required
   Yes No

q) Entrance door equipped with inside
   locking mechanism
   Yes No

r) Air exhaust fan
   Yes No

s) Other equipment (specify)
   Yes No

h. Recovery ward
   1) Located as part of animal vivarium
      P A NA
   2) Located as part of or in close
      proximity to the surgery room
      P A NA
   3) Wall mounted intercommunications unit
      Yes No
   4) Stainless steel recovery ward cages
      a) Number required
      b) Size required

   5) Cage with oxygen supply as integral
      equipment for intensive care patients
      Yes No
   6) Electric blanket or heating pad
      a) Specify which
      b) Number required

   7) Storage cabinet for intensive care
      equipment, special diet foods, intravenous fluids, feeding dishes,
      etc.
      Yes No

   8) Small refrigeration unit
      Yes No

   9) Examination table
      Stainless steel
      Yes No

   10) Single compartment sink, hot and cold
      water with mixing faucet
      Yes No

   11) Disposable towel dispenser
      Yes No

   12) Other equipment (specify)

6. Environmental factors

   a. Aesthetic. Factors to be considered in the aesthetic
      domain are colors, light, style of architecture, design
      and the like. Indicate any special aesthetic considera-
      tions important to the planning of the veterinary
      clinical and hospital management laboratory area(s).

   b. Aerial. Factors to be considered in this category include
      air temperature, radiant temperature, relative humidity,
      and ventilation. Indicate any special considerations
      important to the planning of the veterinary clinical and
      hospital management laboratory area(s).
FORM K

c. Visual. A properly controlled and balanced visual environment is important. The visual environment affects such things as accuracy in perception, attention to tasks, and speed of performance. Indicate any special factors which should be taken into account and planning the veterinary clinical and hospital management laboratory area(s).

d. Sonic. Factors to be considered in this category include such things as acoustical requirements and sound systems. Indicate any special considerations important to the planning of the veterinary clinical and hospital management laboratory area(s).

e. Safety. In planning a school building, safety for students and instructors is of prime concern. Indicate any special safety considerations which have implications for design of the veterinary clinical and hospital management laboratory area(s).

7. Vertical instructional surfaces

a. Chalkboard
   1) Placed in the examination and treatment room
   2) Placed in the pharmacy room
   3) Placed in the sterilization room
   4) Placed in the surgery room
   5) Placed in the radiology lab
      a) Wall mounted
      Lineal feet required
      b) Portable
         (1) Lineal feet required
         (2) Provision for storage

b. Tackboard
   1) Placed in the examination and treatment room
   2) Placed in the pharmacy room
   3) Placed in the sterilization room
   4) Placed in the surgery room
   5) Placed in the radiology lab
      Lineal feet required

8. Special utilities services required

a. Electricity
FORM K

1) 110V AC  Yes  No
2) 220V AC  (x-ray lab)  Yes  No
3) Special lighting requirements  (specify)
   a) 
   b) 
   c) 
4) Electrical needs for other equipment  (specify)
   a) 
   b) 
   c) 

b. Water
   1) Steam hook up to autoclave in sterilization area  Yes  No
   2) Hook up to washing vat in radiology lab  Yes  No
   3) Hook up to boiling water sterilizer  Yes  No
   4) Hook up to water distiller in pharmacy area  Yes  No
   5) Other (specify)  

c. Closed circuit television outlets  Yes  No
   1) Placed in examination and treatment room  Number required
      Yes  No
   2) Placed in surgery room  Number required
      Yes  No
   3) Placed in radiology lab  Number required  

9. Minimum space requirements in square feet

a. Floor area in square feet for entire veterinary clinical and hospital management laboratory area(s)  

b. If distinct space divisions are desired according to function, give minimum floor area requirements in square feet for each of the following area if included in desired program:
   1) Reception room area  
   2) Examination and treatment room area  
   3) Pharmacy area
      a) Storage area  
      b) Dispensing area  
   4) Sterilization area
      a) Cleaning and laundry area  
      b) Area devoted to strictly sterilization  
   5) Surgical preparation area
      a) Area devoted to the operator and assistants  
      b) Area devoted to the animal "prep" area  

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FORM K

6) Surgery area
7) Radiology lab area
   a) Exposure area
   b) Film processing area
8) Recovery ward area

   c. If distinct divisions are desired as separate space from main laboratory area, give minimum floor area requirements in square feet for each of the following areas if included in desired program:
   1) Sterilization area
   2) Radiology laboratory area
   3) Recovery ward
   4)

10. Other important factors to be considered in the planning of the veterinary clinical and hospital management laboratory area(s) are:

__________________________________________________________________
__________________________________________________________________
__________________________________________________________________
__________________________________________________________________
__________________________________________________________________
__________________________________________________________________
__________________________________________________________________
FORM L

DESCRIPTION OF ANIMAL HUSBANDRY LABORATORY AREA(S)
TO BE USED PRINCIPALLY FOR ACTION LEARNING

1 major emphasis
2 some emphasis
3 slight emphasis
N no emphasis

1. The animal husbandry laboratory area(s) should be planned:
   a. As independent unit(s) Yes No
   b. In combination with laboratory area(s) (specify) Yes No
   c. In combination with seminar area(s) Yes No
   d. In combination with lecture/demonstration area(s) Yes No
   e. As an area within a single multi-purpose space Yes No

2. Student capacity required for scheduled activities (see Form E).

3. Student and instructor activities in various space divisions within the animal husbandry laboratory area(s). Indicate the extent to which each activity will occur.
   a. Large animal showing and demonstration space
      1) Judging breeds and types of livestock 1 2 3 N
      2) Livestock showmanship 1 2 3 N
      3) Practice in the casting of animals 1 2 3 N
      4) Demonstration and practice in use of portable animal restraint chute 1 2 3 N
   b. Animal restraint space
      1) Demonstration of fixed restraint methods 1 2 3 N
      2) Anatomical and physiological examination of livestock 1 2 3 N
      3) To demonstrate surgical procedures of husbandry nature (such as dehorning) 1 2 3 N
      4) To demonstrate large animal hospital and clinical techniques and procedures (such as passing stomach tubes, rumenotomy operations, and other standing operations) 1 2 3 N
      5) Student practice as surgical assistants 1 2 3 N
   c. Operating table space
      1) To show techniques and methods used in surgical practice requiring anesthesia and lateral recumbency 1 2 3 N
      2) Student practice as surgical assistants 1 2 3 N
d. Animal washing and grooming space
   Practice in the care and preparation of animals for showing and surgical work
   1 2 3 N

e. Animal holding space
   Animals available for instructional purposes
   1 2 3 N

f. Animal weighing space
   1) To show animal age growth as compared to standards and management practices
   2) To show best marketing weights
   3) Practice in weighing and estimating animal weights for computing amount of anesthetics or drugs required in clinical practices
   1 2 3 N

g. Student seating space
   1) To view activities (demonstrations) in the large animal showing and demonstration space
   2) To lecture and to use visual aids as related to applied animal science
   1 2 3 N

h. Livestock breeding space
   1) To show the collection and storage of semen
   2) To demonstrate and practice the techniques involved in the artificial insemination of livestock
   1 2 3 N

i. Storage space
   1) Drugs and medicine available for instructional purposes
   2) Supplies available for the care and handling of livestock
   3) Visual aids used as instructional resource materials
   1 2 3 N

j. Surgical clean-up space
   1) Student scrub area
   2) Washing and drying of instructional equipment and supplies
   1 2 3 N

k. Other space(s) (specify)
   1) 
   2) 

4. Spatial relationships. Indicate the extent to which spaces should be accessible to each other:

   a. Within the animal husbandry laboratory area(s)
      Large animal showing and demonstration space(s) to:
FORM L

1 major emphasis
2 some emphasis
3 slight emphasis
N no emphasis

a) Animal restraint space  1 2 3 N
b) Operating table space  1 2 3 N
c) Animal washing and grooming space  1 2 3 N
d) Animal holding space  1 2 3 N
e) Animal weighing space  1 2 3 N
f) Student seating space  1 2 3 N
g) Livestock breeding space  1 2 3 N
h) Storage space  1 2 3 N
i) Surgical clean-up space  1 2 3 N
j) Other space(s) (specify)  1 2 3 N

b. Animal husbandry laboratory area(s) to outside related areas
   1) Instructional materials center  1 2 3 N
   2) Sterilizing area  1 2 3 N
   3) Livestock housing area  1 2 3 N
   4) Student lockers and restrooms  1 2 3 N
   5) Building entrance  1 2 3 N
   6) Livestock unloading ramp  1 2 3 N
   7) Other instructional areas  1 2 3 N
   8) Other building areas (specify)  1 2 3 N

5. Furniture and equipment

   a. Large animal showing and demonstration space
      P A NA
      1) Provision for animal tie rails Yes No
      2) Provision of space for animal action Yes No
      3) Provision for floor drains Yes No
      4) Provision for artificial and natural lighting Yes No
      5) Provision for animal watering Yes No
      6) Outlets provided for public address system Yes No
         Number required
      7) Other provisions (specify)
         a)
      b)

   b. Animal restraint equipment
      P A NA
      1) Provision for casting animals Yes No
      2) Fixed stock restraint equipment Yes No
         Number required

   c. Operating equipment
      P A NA
      1) Portable hydraulic operating table Yes No
      2) Portable instrument and surgical supply table Yes No
      3) Provision for special lighting Yes No
**FORM L**

<table>
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<th>Section</th>
<th>Description</th>
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<td>d.</td>
<td>Animal washing and grooming</td>
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<td>1)</td>
<td>Hose stations</td>
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<td>2)</td>
<td>Animal clipping stations</td>
<td>Yes</td>
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<td>3)</td>
<td>Provision for drainage</td>
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<td>No</td>
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<td>e.</td>
<td>Animal holding equipment</td>
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<td></td>
<td>Pen areas</td>
<td>Yes</td>
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<td></td>
<td>Number and type required</td>
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<td>f.</td>
<td>Animal weighing equipment</td>
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<tr>
<td>1)</td>
<td>Portable scale</td>
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<td>2)</td>
<td>Stationary scale</td>
<td>Yes</td>
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<td>g.</td>
<td>Student seating</td>
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<tr>
<td>1)</td>
<td>Bleacher type seating with tablet arms</td>
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<td>2)</td>
<td>Other seating (specify)</td>
<td>Yes</td>
<td>No</td>
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<td>Yes</td>
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<td>3)</td>
<td>Provision for instructor</td>
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<td>4)</td>
<td>Other provisions (specify)</td>
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<td>h.</td>
<td>Livestock breeding equipment</td>
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<td>1)</td>
<td>Breeding rack</td>
<td>Yes</td>
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<td>2)</td>
<td>Provision for collection of semen</td>
<td>Yes</td>
<td>No</td>
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<tr>
<td>3)</td>
<td>Provision for storage of semen</td>
<td>Yes</td>
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<tr>
<td>4)</td>
<td>Artificial reproductive organs of cow-model</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td></td>
<td>Provision for working space around rack</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>i.</td>
<td>Storage furniture</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1)</td>
<td>Cabinet for storage of medicine</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td></td>
<td>Number of type required</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2)</td>
<td>Cabinet for storage of instructional supplies</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td></td>
<td>Number of type required</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3)</td>
<td>Cabinet for storage of supplies used to show and fit animals</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td></td>
<td>Number required</td>
<td></td>
<td></td>
</tr>
<tr>
<td>j.</td>
<td>Clean-up equipment</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1)</td>
<td>Scrub sink for students</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>2)</td>
<td>Wash sink for supplies and equipment</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>3)</td>
<td>Provision for water supply and drains</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>k.</td>
<td>Other equipment required for the animal husbandry laboratory area(s) are:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1)</td>
<td></td>
<td></td>
<td></td>
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<td>2)</td>
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<td>3)</td>
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<tr>
<td>4)</td>
<td></td>
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</tr>
</tbody>
</table>

6. Environmental factors
FORM L

a. Aesthetic. Factors to be considered in the aesthetic domain are colors, light, style of architecture, design and the like. Indicate any special aesthetic considerations important to the animal husbandry laboratory area(s).

b. Aerial. Factors to be considered in this category include air temperature, radiant temperature, relative humidity, and ventilation. Indicate any special considerations important to the animal husbandry laboratory area(s).

c. Visual. A properly controlled and balanced visual environment is important. The visual environment affects such things as accuracy in perception, attention to tasks and speed of performance. Indicate any special factors which should be taken into account in planning the visual environment of the animal husbandry laboratory area(s).

d. Sonic. Factors to be considered in this category include such things as acoustical requirements and sound system. Indicate any special considerations important to the planning of the animal husbandry laboratory area(s).

e. Safety. In planning school buildings, safety for students and instructors is of prime concern. Indicate any special safety considerations which have implications for design of the animal husbandry area(s).

7. Vertical instructional surfaces

<table>
<thead>
<tr>
<th></th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. Chalkboard</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1) Number of lineal feet</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2) Wall mounted</td>
<td>P</td>
<td>A</td>
</tr>
<tr>
<td>3) Portable</td>
<td>PA</td>
<td>NA</td>
</tr>
<tr>
<td>4) Provision for storage</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>b. Tackboard</td>
<td>Yes</td>
<td>No</td>
</tr>
</tbody>
</table>

100
FORM L

8. Special utility services required

a. Electricity
   1) 110V AC
   2) 220V AC
   3) Special lighting requirements
      (specify)
      a) ________________________________
      b) ________________________________
      c) ________________________________
      d) ________________________________
   
   b. Gas
   1) Instructor demonstrator-lecture table
      outlets
   2) Other equipment using gas
      a) ________________________________
      b) ________________________________
   
   c. Water
   1) Sinks
   2) Hose stations--necropsy area
   3) Other (specify) ________________________________
   
   d. Water supply
   e. Outlets for T.V.

9. Minimum space requirements in square feet

a. Floor area in square feet for entire
   animal husbandry laboratory area(s)
   ________________________________

b. If distinct space divisions are desired
   according to function, give minimum floor
   area requirements in square feet for each
   of the following areas if included in
   desired program:
   1) Large animal showing and demonstration
      area
   2) Animal restraint area
   3) Operating table area
   4) Animal washing and grooming area
   5) Animal holding space
   6) Animal weighing area
   7) Student seating space
   8) Livestock breeding area
   9) Storage area
   10) Clean-up area
   11) Other equipment areas

10. Other important factors to be considered in the planning of
    the animal husbandry laboratory area(s) are:

______________________________
DESCRIPTION OF VIVARIUM AND AUXILIARY AREA(S)

A facility planning guide for animal science technology would not be complete without consideration of an animal vivarium and certain related auxiliary areas. Although the vivarium and these auxiliary areas are not designated as true laboratories, they do tend to serve and support the instructional laboratory areas and in some cases the lecture/demonstration and/or seminar areas. This form will elucidate the important aspects of the animal vivarium and auxiliary areas which may be included in the planning process.

1 major emphasis  
2 some emphasis  
3 slight emphasis  
N no emphasis

1. The animal vivarium and auxiliary area(s) should be planned:
   a. As independent unit(s)                      Yes  No
   b. In combination with laboratory area(s)     (specify)  Yes  No
   c. In combination with lecture/demonstration area(s)  Yes  No
   d. In combination with seminar area(s)        Yes  No

2. Student capacity required for scheduled activities (see Form E).

3. Student, instructor and animal caretaker activities within the animal vivarium and auxiliary area(s). Indicate the extent to which each activity will occur.
   a. Practice in feeding, watering and general care of all laboratory animal species  1 2 3 N
   b. Practice in cleaning of cages and replacing with clean litter  1 2 3 N
   c. Breeding the various species at proper intervals to maintain the animal stock level to support instruction in the using lecture or laboratory areas  1 2 3 N
   d. Practice in feeding, watering, cleaning and handling of boarded pet animals  1 2 3 N
   e. Practice in setting up experimental designs using laboratory animals  1 2 3 N
   f. Learning to handle, prepare, and store sterilized feed for axenic and gnotobiotic animals  1 2 3 N
   g. Practice in operating a commercial type cage washer  1 2 3 N
h. Practice in operating an incinerator for sanitary disposal of dead or diseased animals 1 2 3 N
i. Practice in managing a veterinary hospital medical and boarding ward 1 2 3 N
j. Experience in the importance of properly working air conditioning in an animal vivarium as to air changes, specific temperature and humidity controls for the different laboratory animal species 1 2 3 N
k. Learning the importance of species separation in regards to cross current infections with indigenous diseases 1 2 3 N

4. Spatial relationships. Indicate the extent to which spaces should be accessible to each other.

The animal vivarium and auxiliary area(s) to:
a. Clinical testing and analysis laboratory 1 2 3 N
b. Basic veterinary sciences laboratory 1 2 3 N
c. Animal care laboratory 1 2 3 N
d. Veterinary clinical and hospital management laboratory area(s) 1 2 3 N
e. Lecture/demonstration area(s) 1 2 3 N
f. Seminar area 1 2 3 N
g. Instructional materials center 1 2 3 N
h. Student locker and restrooms 1 2 3 N
i. Building entrance--rear 1 2 3 N
j. Delivery area 1 2 3 N
k. Parking area 1 2 3 N
l. Other instructional area(s) (specify) 1 2 3 N
m. Other building areas (specify)
   1) 1 2 3 N
   2) 1 2 3 N

5. Laboratory animal species desired:

   a. Dogs
      Number required
   b. Cats
      Number required
   c. Rabbits
      Number required
   d. Guinea pigs
      Number required
   e. Hamsters
      Number required

   Yes  No

   Yes  No

   Yes  No

   Yes  No

   Yes  No
f. Gerbils
   Number required
   Yes  No

g. Rats
   Number required
   Yes  No

h. Mice
   Number required
   Yes  No

i. Primates
   Number required
   Yes  No

j. Mini-pigs
   Number required
   Yes  No

k. Japanese quail
   Number required
   Yes  No

l. Other species desired (specify)
   1)   Number required
   Yes  No
   2)   Number required
   Yes  No
   3)   Number required
   Yes  No

6. Equipment or facilities for animal vivarium
and auxiliary area(s)

a. Dog caging
   Yes  No
   1) Stainless steel
   P   A   NA
   2) Galvanized
   P   A   NA
   3) Plastic
   P   A   NA
   4) Size required (refer to I.L.A.R.
      minimum standards)
   5) Number required
   6) With access to outside runs
      Size of individual outside runs
      Yes  No
      P   A   NA

b. Cat caging
   Yes  No
   1) Colony housing
      P   A   NA
   2) Individual housing
      a) Stainless steel
      P   A   NA
      b) Galvanized
      P   A   NA
      c) Plastic
      P   A   NA
      d) Size cage required (I.L.A.R.
          minimum standards)
      e) Number required

   Yes  No
   P   A   NA
   P   A   NA

   d. Guinea pig caging
      Yes  No
      1) Stainless steel
      P   A   NA
      2) Galvanized
      P   A   NA
      3) Single caging
      P   A   NA
      4) Battery (communal) caging

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FORM M

5) Size required (I.L.A.R. minimum standards) P A NA
6) Number caging units required P A NA
7) Mobile caging units P A NA
8) Number and size of cage racks required P A NA

e. Hamster caging
1) Galvanized cages Yes No
2) Plastic cages P A NA
3) Size required (I.L.A.R. minimum standards) P A NA
4) Number caging units required P A NA
5) Number and size of cage racks required P A NA

f. Rat caging
1) Galvanized hanging cages Yes No
2) Plastic cages P A NA
3) Size required (I.L.A.R. minimum standards) P A NA
4) Number of caging units required P A NA
5) Number and size of cage racks required P A NA

g. Mouse caging
1) Plastic caging Yes No
2) Galvanized P A NA
3) Stainless steel caging P A NA
4) Size required (I.L.A.R. minimum standards) P A NA
5) Number caging units required P A NA
6) Number and size of cage racks required P A NA

h. Gerbil caging
1) Plastic caging Yes No
2) Galvanized P A NA
3) Stainless steel caging P A NA
4) Size required (I.L.A.R. minimum standards) P A NA
5) Number caging units required P A NA
6) Number and size of cage racks required P A NA

i. Mini-pig caging
1) Stainless steel caging Yes No
2) Galvanized caging P A NA
3) Size caging required (I.L.A.R. minimum standards) P A NA
4) Number caging units required P A NA
5) Mobil caging desired P A NA

j. Japanese quail caging
1) Galvanized caging Yes No
2) Stainless steel caging P A NA
3) Battery caging P A NA
4) Singular or paired caging P A NA
5) Size caging required P A NA
6) Number caging units required P A NA

k. Caging for other species (specify)
1) P A NA
2) P A NA
3) P A NA
4) P A NA

j. Japanese quail caging
1) Galvanized caging Yes No
2) Stainless steel caging P A NA
3) Battery caging P A NA
4) Singular or paired caging P A NA
5) Size caging required P A NA
6) Number caging units required P A NA

k. Caging for other species (specify)
1) Yes No
2) P A NA
3) P A NA
4) P A NA

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1. Additional vivarial equipment or facilities

<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
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</thead>
<tbody>
<tr>
<td>1) Cages equipped with dishes and dish-holders for feeding cats, dogs and primates</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>2) Cages equipped with sipper tube bottles and removable trays for watering and feeding rabbits and guinea pigs</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>3) Cages equipped with sipper tube bottles and molded grill wire tops for watering and feeding hamsters, gerbils, rats, and mice</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>4) Caging equipped with troughs for watering and feeding mini-pigs</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>5) Caging equipped with inch square wire mesh flooring, water fountains, and removable tray feeders for cleaning, watering and feeding Japanese quail</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>6) Each lab animal species caged and housed separately from another species</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>7) If more than one species are to be housed together, specify the species involved</td>
<td></td>
<td></td>
</tr>
<tr>
<td>8) Vivarial room walls to be finished with:</td>
<td>P</td>
<td>A</td>
</tr>
<tr>
<td>a) Vinyl plastic covering</td>
<td>P</td>
<td>A</td>
</tr>
<tr>
<td>b) Ceramic tile</td>
<td>P</td>
<td>A</td>
</tr>
<tr>
<td>c) Other (specify)</td>
<td>P</td>
<td>A</td>
</tr>
<tr>
<td>9) Vivarial room floors:</td>
<td>P</td>
<td>A</td>
</tr>
<tr>
<td>a) To be finished with:</td>
<td>P</td>
<td>A</td>
</tr>
<tr>
<td>(1) Smooth concrete</td>
<td>P</td>
<td>A</td>
</tr>
<tr>
<td>(2) Painted surface</td>
<td>P</td>
<td>A</td>
</tr>
<tr>
<td>(3) Vinyl tile</td>
<td>P</td>
<td>A</td>
</tr>
<tr>
<td>(4) Ceramic tile</td>
<td>P</td>
<td>A</td>
</tr>
<tr>
<td>(5) Other (specify)</td>
<td>P</td>
<td>A</td>
</tr>
<tr>
<td>b) To be equipped with a central water drain, properly trapped</td>
<td>P</td>
<td>A</td>
</tr>
<tr>
<td>10) Each vivarial room to be equipped with a double compartment sink, with drainboard, hot and cold water supply with mixing faucet</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>11) Work table or work counter in each vivarial room</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Size table required</td>
<td></td>
<td></td>
</tr>
<tr>
<td>12) Electronic balance scale provided for weighing in each small laboratory animal species room</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>13) Spring balance scale provided for weighing in each of the larger laboratory animal species rooms</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>14) Waste receptacle and disposable towel dispensor provided in each vivarial room</td>
<td>Yes</td>
<td>No</td>
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<td></td>
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<tr>
<td>15) Storage cabinet for miscellaneous equipment and supplies located in each vivarial room</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td></td>
<td>Size cabinet required</td>
<td></td>
</tr>
<tr>
<td>16) Separate climate controlled air conditioning provided for each animal species room so as to provide 12-18 changes of air per hour and optimum temperature and humidity for each species as recommended by the Institute of Laboratory Animal Resources</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td></td>
<td></td>
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<tr>
<td>17) Temperature-humidity recording thermometer, wall mounted in each room to monitor actual aerial conditions experienced</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>18) Chalkboard and tack board mounted on wall in each vivarial room</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td></td>
<td>Lineal feet required</td>
<td></td>
</tr>
<tr>
<td>19) Commercial cage and rack washer</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td></td>
<td>Size or capacity washer required</td>
<td></td>
</tr>
<tr>
<td>20) Cage drying rack</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td></td>
<td>Size rack required</td>
<td></td>
</tr>
<tr>
<td>21) Commercial bottle washer</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td></td>
<td>Capacity washer required</td>
<td></td>
</tr>
<tr>
<td>22) Animal incinerator</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>a) Capacity of burner and burning chamber required</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>b) Incinerator located indoors</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>c) Incinerator located outside vivarial facility</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>23) Food, bedding, and animal supplies storage</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>a) Provided as cupboards or cabinets along wall of cage washing area</td>
<td>P A NA</td>
<td></td>
</tr>
<tr>
<td>b) Provided as a separate room from cage washing area</td>
<td>P A NA</td>
<td></td>
</tr>
<tr>
<td>c) Made of vermin proof materials</td>
<td>P A NA</td>
<td></td>
</tr>
<tr>
<td>d) Bedding to be stacked in bales</td>
<td>P A NA</td>
<td></td>
</tr>
<tr>
<td>e) Bins to be supplied in storage area for bedding</td>
<td>P A NA</td>
<td></td>
</tr>
<tr>
<td>f) Refrigeration unit provided for storing perishable foods</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>g) Shelving to be provided for dry food and supplies storage</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td></td>
<td>Lineal feet required</td>
<td></td>
</tr>
<tr>
<td>h) Storage door provided with locking system</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>i) Feed and bedding carts with multiple bins</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td></td>
<td>(1) Size of carts needed</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(2) Number of carts needed</td>
<td></td>
</tr>
<tr>
<td>24) Floor of cage washing area to slope towards a system of properly trapped drains</td>
<td>P A NA</td>
<td></td>
</tr>
</tbody>
</table>
m. Special vivarial equipment options
1) Automatic watering devices
2) Automatic cage flushing devices

7. Special utilities services required

a. Electricity
1) 110V AC
2) 220V AC (air conditioning and heating unit)
3) Natural lighting provided in daytime
   a) Number of windows to be provided
   b) Window sizes
4) All lighting by fluorescent lamps
5) Ultra violet germicidal lamps provided in each vivarial room

b. Intercommunication unit mounted in each vivarial room

Yes No

Yes No

Yes No

Yes No

Yes No

Yes No

Yes No

Yes No

Yes No

Yes No

Yes No

Pounds water pressure required

8. Minimum space requirements in square feet

a. Floor area in square feet for entire animal vivarium and auxiliary area(s)

b. Minimum floor area requirements in square feet for each of the distinctly separate areas comprising the area in (a) above

1) Food, bedding, and animal supplies storage area

2) Cage and bottle washing area

3) Dog housing area

4) Cat housing area

5) Rabbit housing area

6) Guinea pig housing area

7) Hamster housing area

8) Gerbil housing area

9) Rat housing area

10) Mouse housing area

11) Primate housing area

12) Mini-pig housing area

13) Japanese quail housing area

14) Other (specify)
9. Other important factors to be considered in the planning of the animal vivarium and its auxiliary area(s) are:

________________________________________________________________________________
________________________________________________________________________________
________________________________________________________________________________
________________________________________________________________________________
________________________________________________________________________________


FORM N

DESCRIPTION OF THE INSTRUCTIONAL MATERIALS CENTER AREA

1 major emphasis
2 some emphasis
3 slight emphasis
N no emphasis

1. The instructional materials center area should be planned:
   a. As independent unit(s) Yes No
   b. In combination with laboratory area(s) (specify) Yes No
   c. In combination with lecture/demonstration area(s) Yes No
   d. In combination with seminar area(s) Yes No
   e. As an area within a single multi-purpose space Yes No

2. Student and/or instructor activities within the instructional materials center area. Indicate the extent to which each activity will occur.
   a. Storing 8 mm and 16 mm movie projectors 1 2 3 N
   b. Storing portable projection screen 1 2 3 N
   c. Storing 2" X 2" carousel slide projector 1 2 3 N
   d. Storing 35 mm--2" X 2" instructional slides 1 2 3 N
   e. Storing 8 mm and 16 mm instructional films 1 2 3 N
   f. Storing overhead projection equipment 1 2 3 N
   g. Filing and storing transparencies for overhead projection 1 2 3 N
   h. Mimeographing instructional materials, reports, etc. 1 2 3 N
   i. Storing office supplies 1 2 3 N
   j. Storing 35 mm camera 1 2 3 N
   k. Collating reports, instructional materials, etc. 1 2 3 N
   l. Storing film strip projector 1 2 3 N
   m. Storing tape recorder 1 2 3 N

3. Spatial relationships. Indicate the extent to which spaces should be accessible to each other.

   The instructional materials center area to outside related areas:
   1) Clinical testing and analysis laboratory 1 2 3 N
   2) Basic veterinary sciences laboratory 1 2 3 N
   3) Animal care laboratory 1 2 3 N
   4) Veterinary clinical and hospital management laboratory 1 2 3 N
FORM N

<table>
<thead>
<tr>
<th></th>
<th>1 major emphasis</th>
<th>2 some emphasis</th>
<th>3 slight emphasis</th>
<th>N no emphasis</th>
</tr>
</thead>
<tbody>
<tr>
<td>5) Animal husbandry laboratory</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>N</td>
</tr>
<tr>
<td>6) Lecture/demonstration area</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>N</td>
</tr>
<tr>
<td>7) Seminar area</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>N</td>
</tr>
<tr>
<td>8) Faculty offices</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>N</td>
</tr>
</tbody>
</table>

4. Furniture and equipment
   a. Wall shelving
      Lineal feet required
   b. File cabinets
      Number required
   c. Counter work space
      Lineal feet and width required
   d. Table work space
      Size table required
   e. Mimeograph machine
   f. Table for mimeograph machine
   g. 8 mm movie projector
   h. 16 mm movie projector
   i. Portable projection screen
   j. Carousel 2" X 2" slide projector
   k. Overhead projector
      Number required
   l. 35 mm camera
   m. Film strip projector
   n. Tape recorder, 2 speed

5. Special utilities services required
   Electricity
   1) Artificial lighting
   2) 110V AC base or wall outlets for operating mimeograph or projection equipment

6. Minimum space requirements in square feet for the instructional materials center area

7. Other factors to be considered in the planning of the instructional materials center area are:

   ___________________________________________
   ___________________________________________
   ___________________________________________
   ___________________________________________
   ___________________________________________
Other important factors to be considered in the overall planning and design of instructional areas for the planned animal science occupational preparation program(s) are:
PART IV

ANNOTATED BIBLIOGRAPHY

GENERAL FACILITY PLANNING


Contributors to this publication were teachers, supervisors, administrators, architects, engineers, school board members, and school plant planning specialists. In addition to background material on school house construction, the book deals with specific topics including school surveys, analysis and computation of space and facility needs, enrollment projections, building designs, site selection, finance, and building maintenance and operation. Many pictures and illustrations are found, along with sample forms and outlines, which can be used in the facility planning process. No special consideration is given to unique problems faced in the planning for vocational and technical education facilities.


A textbook on overall planning procedures for new and improved school facilities. The typical topics (school surveys, building planning, site selection and acquisition, architectural planning, contracting for construction, and the equipping and furnishing of buildings) are covered. The only mention of vocational schools is on page 270 where the author quotes from another source:

Vocational training should be de-emphasized in the schools since this training often becomes obsolete before it can be used; also, special "trade" and "vocational" schools should be discontinued, unless the vocational curriculum is liberal in approach and broad in character. Such schools are often used as dumping grounds for students who are not wanted elsewhere and often no more than custodial care is provided for them. When more is provided, the skills taught are frequently too partial in nature.

A book prepared for the inexperienced school planner. The author emphasizes that a school building is an educational tool and should be designed to do the job it is intended to do. The four steps discussed are: 1) district-wide building survey; 2) educational planning; 3) architectural planning and construction; and 4) moving in and settling down. A glossary of important terms used in plant planning is located in the back of the book.


A compilation of references in the following categories: general references; periodicals; overview of school plant field; district wide building survey; educational planning; the architect and his work; moving in and settling down; and related topics.


This manual is intended to assist officials of school districts who are planning programs for maximum use of school properties and who must develop policies and regulations for efficient management of such programs. Various schedules of facility use are illustrated for nine different school systems.


This work is designed to meet the needs of three distinct groups interested in providing educational facilities. Report A: "A Guide for Policy Makers" is directed to boards, administrators, planning committees, and institutional planners. Report B: "A Guide for the Design of Professions" is designed for architects, planners, and design specialists and planning committees; and Report C: "A Technical Guide" is intended for design-architects, engineers, equipment and furniture suppliers, and media specialists.


A basic reference on school plant planning and construction for use by superintendents, school board members, school plant planners, state department of education personnel, local school system officials, collegiate institutions, architects, lay advisory groups, and graduate students. Major topics
covered are: planning and programming educational plants; spaces and equipment for learning; non-instructional systems; space organization and economy and resources. Much attention is given to plant planning through a description of a survey technique used to determine and satisfy school plant needs for a community. Site selection, kinds of instructional spaces, sonic, thermal, and visual environments, and best use of natural and plant resources are also treated.


The contents of this book include a description of what educational planning is, when it is done, who does it, and how it is done. The three steps of planning are identified as 1) identification and analysis of educational and facility needs, 2) adapting and implementing plant improvement programs, and 3) completing and evaluating a process of the educational planning.


Basic principles of school design is the thrust of this publication. It focuses on the interrelationship of patterns of school activities, organization of activities on the site, design potentials for various sites, and the building design data necessary for communicating the school's needs to the architect.


This publication seeks to suggest which learning functions can be served electronically to symbolize the nature and progressive complexity of each electronic system, and finally to estimate budgets which will provide for adequate systems in relation to engineering and warranty costs.


A comprehensive textbook on the administration of the school plant program. The book is organized into three major parts. Part 1 - "Policy Decisions" deals with school building needs studies and long-range planning. Part 2 - "Program Recommendations" deals with local study of plant needs, evaluation of existing plant, determination of additional plant needs, site selection and development, and the preparation of educational specifications. Part 3 - "Project Administration" is concerned with the financial aspects of a building program and with public relations. There is a brief mention of the objectives of vocational education as contrasted with the objectives of general education on page 12.

This book deals with the cost of a schoolhouse and the process of planning and financing it. It provides median costs for various building elements, designates individual responsibilities in process of building, and discusses arrangement of space and environmental factors.

VOCATIONAL-TECHNICAL FACILITY PLANNING


The purpose of this publication is to reduce the broad principles and processes of school plant planning to those most applicable to vocational and practical arts education. Effective techniques for developing educational specifications are suggested. The committee provides a sequential treatment of program and administrative considerations, desired space and educational program, special site arrangement features, special physical aspects of building, and the financial requirements for the project.


A study of related literature on programmed instruction, instructional films, instructional television, and learning from various instructional media. It analyzes new instructional media approaches used at North Carolina's Fundamental Learning Laboratories System, and the integrated experience approach at Oakland Community College.


A general guide that describes important steps to be followed in the planning for and construction of vocational and technical education facilities. Important topics covered are: the impact of the Vocational Education Act of 1963; surveys of area educational needs; use of consultant services; basic planning considerations; educational specifications; general planning; and school construction cost and outlay. Sample floor plans and picture illustrations of vocational schools are included.

An account of the procedures followed in the establishment of a technical college within a period of less than 90 days. The entire planning process and implementation is described along with the PERT technique which was applied. The author concluded the PERT (Program Evaluation and Review Technique) was effective in assisting the planners in reaching their objectives within a short period of time.


The pamphlet emphasizes the need for a total flexibility concept in school building. Consideration is given to the use of building components to provide flexibility in space, lighting, air-conditioning, sewage system, and the like.


A report on new trends in the construction of vocational education facilities. Among topics covered are occupational clusters, teaching techniques such as micro-teaching and educational television, facilities for handicapped children, educational parks, and unique problems faced by large city school systems. Special consideration is given to maximum utilization of vocational education facilities on an around-the-clock basis.


A report which relates the thinking of six outstanding consultants on various topics relating current trends in vocational-technical education and facility planning. Reviews the work of a local consortium consisting of three Center vocational specialists, three school plant planners, three representatives from the State Department of Education, three local school officials, and three practicing architects in defining problems, clarifying issues, suggesting approaches to organizing planning guides, and establishing guidelines for a series of facility planning guides in selected vocational and technical subject areas.


A general facility planning guide for programs of vocational education. Principal topics covered include: 1) number of teaching stations; 2) types of teaching stations; 3) equipment needs; and 4) floor areas required. The planning manual also deals with spatial relationships of teaching facilities.
and the utilization of auxiliary areas such as libraries, cafeterias, and administrative suites. Planners using the guide are directed to complete checklists and fill-in blanks with the necessary information pertinent to vocational facility planning.

**ANIMAL SCIENCE TECHNOLOGY FACILITY PLANNING**


A booklet prepared by the committee on the Guide for Laboratory Animal Facilities and care of the Institute of Laboratory Animal Resources National Academy of Sciences—National Research Council. This publication serves as a useful reference for institutions conducting animal care programs or animal vivariums. Laboratory and large animal housing and care is explained in some detail.

**Institute of Laboratory Animal Resources. Standards for the Breeding, Care, and Management of Laboratory Animals.**


A series of reports, prepared under the auspices of the Institute of Laboratory Animal Resources, outlining the currently accepted minimum standards for the housing, breeding, care, and management of each of the most commonly used laboratory animal species.

**Journal of the American Veterinary Medical Association.** 600 South Michigan Avenue, Chicago, Illinois 60605.

A professional journal published semimonthly by the American Veterinary Medical Association. Articles are published on large and small animals with clinical items and animal research abstracts.

**State University of New York, Agricultural and Technical College, Animal Science Program Descriptions, Delhi, New York.**

The two year college at Delhi, with its laboratory animal science technology program has facility plans and equipment lists. These materials are available upon request to the college.

**Veterinary Economics, St. Joseph, Michigan.**

A veterinarian's business magazine published monthly. Selected editions of the 1967 and 1968 issues have articles on plans for the construction of veterinary hospital and clinical facilities.
## PUBLICATIONS OF THE CENTER FOR VOCATIONAL AND TECHNICAL EDUCATION

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