

## 6-1 GENERAL

This chapter demonstrates the application of criteria in developing concept alternatives for different ACES Center projects to serve the given military strength of 6,000, 10,500 and 21,000 persons. One example is given for each size military strength in Schemes A, B and C. Scheme A, discussed in para 6-2, most fully illustrates the planning and programming process. Schemes A-1, B-1 and C-1 follow as alternative designs to illustrate the affect of different site conditions on space organization. The procedure, as well as the information, is in abbreviated form to illustrate the most important considerations. An in-depth analysis with detailed information from each particular installation will be required in planning and designing an actual project.

## 6-2 EXAMPLE DESIGN-SCHEME A FOR 6,000 MILITARY STRENGTH

**a. SITUATION.** The project is located on an installation in the Midwestern United States. The existing ACES activity is housed in two separate structures which were converted from barracks and are both inefficient and unable to meet current needs. A relatively small rectangular site is identified on the master plan for a new ACES Center, and the installation commander has requested that a new facility be provided. The project site is within walking distance of the Exchange and main Library. It is gently sloping to the southwest and is defined by a secondary road on the south. The site has no significant features or views.

The existing program has a fairly constant semester enrollment of 700 people that utilize facilities at different times during the week. The activity operates five days per week from 7:30 a.m. to 4:00 p.m. with some classes occasionally meeting in the evening from 7:30 to 9:00 p.m. Although classes are not held on weekends, some space is used for recreational activities such as movies and lectures in order to supplement a relatively small and already over-burdened Recreation Center.

### b. PLANNING DATA

(1) Authorized Space Allowance. A 6,000 person (military strength) installation is allowed (Table 2-1) up to 16,920 GSF, excluding mechanical space, for an ACES Center.

(2) Staffing. Authorized staffing is shown in Table 6-1.

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### 6-2 EXAMPLE DESIGN-SCHEME A FOR 6,000 MILITARY STRENGTH (cont'd)

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**Table 6-1 Example Staffing for Military Strength of 6,000**

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Type	No. of Authorized Staff
Director	
Administrator	
Clerk	
Typist	2
Registrar	1
Counselors	5
Total	11

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(3) Anticipated Courses and Enrollment. Based on a ten-year projection of student needs at the installation, a range of programs, courses and services is anticipated and include the following: Basic Skills Education Programs (BESEP), Skill Development, Counseling, ACES testing, MOS related instruction, foreign language instruction, group study classes, baccalaureate and advanced degree programs. The typical semester courses and enrollment anticipated are shown in Table 6-2.

(4) Assignment of courses to Instructional Space Types. Referring to the individual space types in Chapter 4 (Academic; para 4-3); each course anticipated to be taught at the ACES Center is assigned to a specific space type (Classroom, Lecture Room, Science Lab, etc.). The number of hours per week that the space type is required ("C" Value) is then determined by using the parameters set forth in Chapter 2 (Table 2-2). In this example, the courses assigned to a "Classroom" type space are shown in Table 6-3, along with the parameters set forth in Chapter 2 to determine the "C" Value. Detail assignments to other space types and "C" value determinations are not shown.

6-2 EXAMPLE DESIGN-SCHEME A FOR 6,000 MILITARY STRENGTH (cont'd)

**Table 6-2 Typical Semester Courses & Enrollment Based on 10-Year Projection  
Example for Military Strength of 6,000**

Course Designation	Enrollment
<u>Academic</u>	
1. English 1	88
2. English 2	67
3. English Comp.	60
4. English Literature	12
5. World Literature	10
6. Arithmetic	38
7. Business Math	48
8. Principles of Accounting	48
9. Algebra 1	47
10. Geometry	31
11. Trigonometry	35
12. Calculus	20
13. Statistics	15
14. Principles of Real Estate	9
15. History 1	46
16. History 2	38
17. Ancient History	11
18. Philosophy	8
19. Middle Eastern Culture	9
20. History of Art	11
21. Biology	24
22. Chemistry	18
23. Physics	30
24. Spanish	21
25. French	18
26. German	14
27. Audio-Visual Lesson Materials	48
<u>Vocational Training</u>	
none	
TOTAL ANTICIPATED ENROLLMENT PER SEMESTER	724

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**6-2 EXAMPLE DESIGN-SCHEME A FOR 6,000 MILITARY STRENGTH (cont'd)**

**Table 6-3 Example Projected Space Type Utilization**

SPACE TYPE: <u>CLASSROOM</u>					
Course Designation	Typical Semester Enrollment	Max Class Size	No. of Classes	Hrs/wk Ea. Class Meets	Hrs/wk Required
English 1	88 students	24	4	4	16
English 2	67	24	3	4	12
Algebra 1	47	24	2	5	10
Geometry 1	31	24	2	5	10
Trig 1	35	24	2	5	10
Arithmetic	38	24	2	5	10
Calculus	20	24	1	5	5
History 1	46	24	2	5	10
History 2	38	24	2	5	10
English Comp	60	24	3	4	12
TOTAL HRS/WK SPACE TYPE IS REQUIRED					C = 105

(5) Determination of Number of Each Space Type. The number of each type of space required is determined by using the formula  $N = c/uh$  as set forth in Chapter 2 (para 2-5b(5)). Utilizing the "C" value established in Table 6-3, a 40 hour/week operation ("h" value), and a 0.8 utilization rate ("u" value), the number of classrooms required is determined as follows:

$$N = \frac{105}{0.8} \times 40; \quad N = 3.3$$

Rounded up to the nearest whole integer the number of classrooms required is 4. The same process is used to determine the number of other instructional spaces required for the total project. The types and number of academic spaces required for this example project are shown in Table 6-4. The occupant load is also identified in order to help determine the requirement for toilet fixtures later on.

6-2 EXAMPLE DESIGN-SCHEME A FOR 6,000 MILITARY STRENGTH (cont'd)

Table 6-4 Number of Academic Spaces Needed-Example

Type of Academic Space/Occupant Load Each	No. Required	Occupant Load
Classroom/25	4 req'd *; bal. = 2	50
Lecture Room/53	1	53
Seminar Room/13	3	39
MOS Library/9	1	9
Self-Paced Instruction/20	1	20
Language Lab/22	1	22
Science Lab/25	1	25
Testing Room/37 (as classrooms/50)	1	50
Rehearsal and Recording Studio/6	1	6
* Testing Room will serve as 2 classrooms		
Academic Occupant Load		274

(6) Survey of Existing Suitable Facilities. In this example, no space requirements can be subtracted since there are no existing facilities within eight-minutes walking distance that are suitable.

(7) Academic Space Requirements. By multiplying the number of spaces required for each space type times the NASF space allocated in Chapter 4, para 4-3, the total academic space required is determined as shown in Table 6-5.

Table 6-5 Academic Space Requirements-Example

Type of Space	No. of Spaces Required	x	NASF/Space Allocated	=	Total NASF
Classroom	2		750		1500
Lecture Room	1		1500		1500
Seminar Room	3		375		1125
MOS Library	1		750		750
Self-Paced Instruction	1		750		750
Language Lab	1		750		750
Science Lab	1		1500		1500
Testing Room	1		1905		1905
Reh/Rec Studio	1		375		375
Total Academic Space Required					10,155 NASF

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**6-2 EXAMPLE DESIGN-SCHEME A FOR 6,000 MILITARY STRENGTH (cont'd)**

(8) Staff Space Requirements. Based upon the staffing authorized (Table 6-1) and the space allowances stated in Chapter 4, para 4-2, the total staff space required is derived by multiplying the number of spaces required times the NASF space allocated as shown in Table 6-6.

**Table 6-6 Staff Space Requirements-Example**

Type of Space	No. of Spaces Required	x	NASF/Space Allocated	=	Total NASF
Director	1		200		200
Administrator	1		150		150
Clerk	1		100		100
Typist	2		75		150
Registrar	1		100		100
Information			150		150
Storage			75		75
Counselors	5		100		500
Reference			150		150
Total Staff Space Required					1575 NASF

(9) Support Space Requirements. Determination of support space requirements is based upon the percentages of combined NASF (for academic and staff spaces) and minimum allocations given in Chapter 4, para 4-5. Requirements for toilet facilities are based upon peak occupant load male/female ratio, fixture allocation, and unit space allowances (para 4-5.e.). In this example, the combined NASF is 10,155 + 1575; or 11,730. The peak occupant load is assumed to be 274 (academic) + 11 (staff); or 285. Computation of total support space required for this project is shown in Table 6-7.

**Table 6-7 Support Space Requirements-Example**

Type of Space	NASF/Space Allocated	Total NASF
Staff Lounge	1.5% x 11,730 NASF* (min 150 NASF)	175
Student Lounge	5.5% x 11,730 NASF (min 400 NASF)	645
Vending Area	3% x 11,730 NASF (min 300 NASF)	350
Training Aids Prep.	4% x 11,730 NASF (min 300 NASF)	470
Toilets (for 285**)	See para 4-5.e., Chapter 4	
Men (213)	6 WC, 5 UR, 9LAV	410
Women (72)	3 WC, 3 LAV	155
Receiving/Gen. Stor.	5% x 11,730 NASF (min 300 NASF)	585
Janitor Closet	1% x 11,730 NASF (rein 90 NASF)	120
*Combined NASF for academic and staff spaces		
**Peak occupant load.		
TOTAL SUPPORT SPACE REQUIRED		2,910 NASF

**6-2 EXAMPLE DESIGN-SCHEME A FOR 6,000 MILITARY STRENGTH (cont'd)**

(10) Gross Space Requirement. Gross space (GSF) is determined by allowing 15% of the total NASF for academic, staff and support spaces for circulation, exterior walls, etc. Since space for the building's mechanical equipment is not figured as part of the gross space, such space must be determined separately and added to the gross total. Table 6-8 summarizes the space requirements for this example.

**Table 6-8 Tabulated Space Requirements and Occupant Capacity  
Example for Military Strength of 6,000**

	Load	SF
<u>Staff Spaces</u>		
Director	1	200
Administrator	1	150
Clerk	1	100
Typists (2)	2	150
Registrar	1	100
Information and Storage	—	225
Counselors (5)	5	500
Reference	—	150
Total Staff Capacity	11	1,575
<u>Academic Spaces</u>		
Classrooms (2)	50	1,500
Lecture Room	53	1,500
Seminar Rooms (3)	39	1,125
MOS Library	9	750
Self-Paced Instruction	20	750
Language Lab	22	750
Science Lab	25	1,500
Testing Room (2 classrooms)	50	1,905
Rehearsal/Recording Studio	6	375
Total Student Capacity	274	10,155
<u>Support Spaces</u>		
Staff Lounge		175
Student Lounge		645
Vending Area		350
Training Aids Preparation		470
Toilets—men		410
—women		155
Receiving/Gen. Storage		585
Janitor Closet		120
		2,910
Net Total		14,640 NASF
Net to Gross Space at 15%		2,195
Gross Total (maximum allowable target—16,920 GSF)		16,835 GSF
Mechanical Space		150

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### 6-2 EXAMPLE DESIGN-SCHEME A FOR 6,000 MILITARY STRENGTH (cont'd)

#### d. DESIGN SOLUTION

(1) Basic Spatial Organization. Since this example project does not include vocational training spaces and must be designed to fit on a long, narrow site, a simple linear scheme, modified from the parallel and axial schemes is used. Primary access is provided at one end which adjoins the parking area as shown in Figure 6-1.

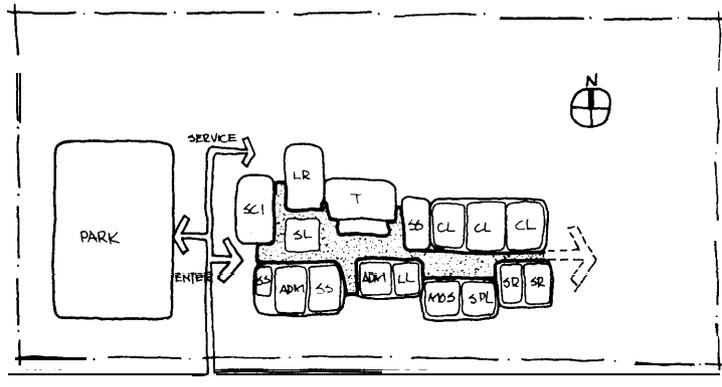


Figure 6-1 Basic Spatial Organization-Scheme A

(2) Example Plan. This example design is developed around two courtyards along the primary circulation spine as shown in Figure 6-2. The courtyards are used to create volumetric interest in conjunction with a set of viewing positions planned along the scheme. They are also used to provide natural light and greenery to the interior of the building, creating focal points around which various functional spaces are clustered. The information/registrar area is located adjacent to the main entrance to serve as a control point for the building. The student lounge is located on the circulation spine adjacent to the vending area and the lecture room for multi-use purposes. Counselor offices are centrally located for easy access from the main entrance to serve the needs of both students enrolled in courses and military personnel who come for counseling only. Toilets are placed at the approximate center of the circulation spine in order to best serve the entire building. Employing the basic 5-foot module system discussed in Chapter 3., the 25 ft x 30 ft (750 SF) module is utilized for all academic and staff spaces. The modules are offset at various points to create the interior courtyard spaces.

6-2 EXAMPLE DESIGN-SCHEME A FOR 6,000 MILITARY STRENGTH (cont'd)

- |   |   |                               |
|---|---|-------------------------------|
| 1. Entrance                                 | 12. Classroom                           | 23. Vending Storage           |
| 2. Director                                 | 13. Seminar Room                        | 24. Men's Toilet              |
| 3. Administrator                            | 14. Lecture Room                        | 25. Women's Toilet            |
| 4. Clerk                                    | 15. MOS Library                         | 26. Janitor's Closet          |
| 5. Typists                                  | 16. Self-Paced Instruction              | 27. Receiving Room            |
| 6. Information & Registration               | 17. Science Lab                         | 28. General Storage           |
| 7. Storage                                  | 18. Language Lab                        | 29. Secondary Entrance        |
| 8. Training Aids Preparation                | 19. Testing Room and Related Facilities | 31. Landscape Court           |
| 9. Counselors                               | 20. Staff Lounge                        | 32. Student and Staff Parking |
| 10. Conference Room                         | 21. Student Lounge                      | 33. Handicapped Parking       |
| 11. Instructor's Rehearsal/Recording Studio | 22. Vending Area                        | 35. Service Area              |

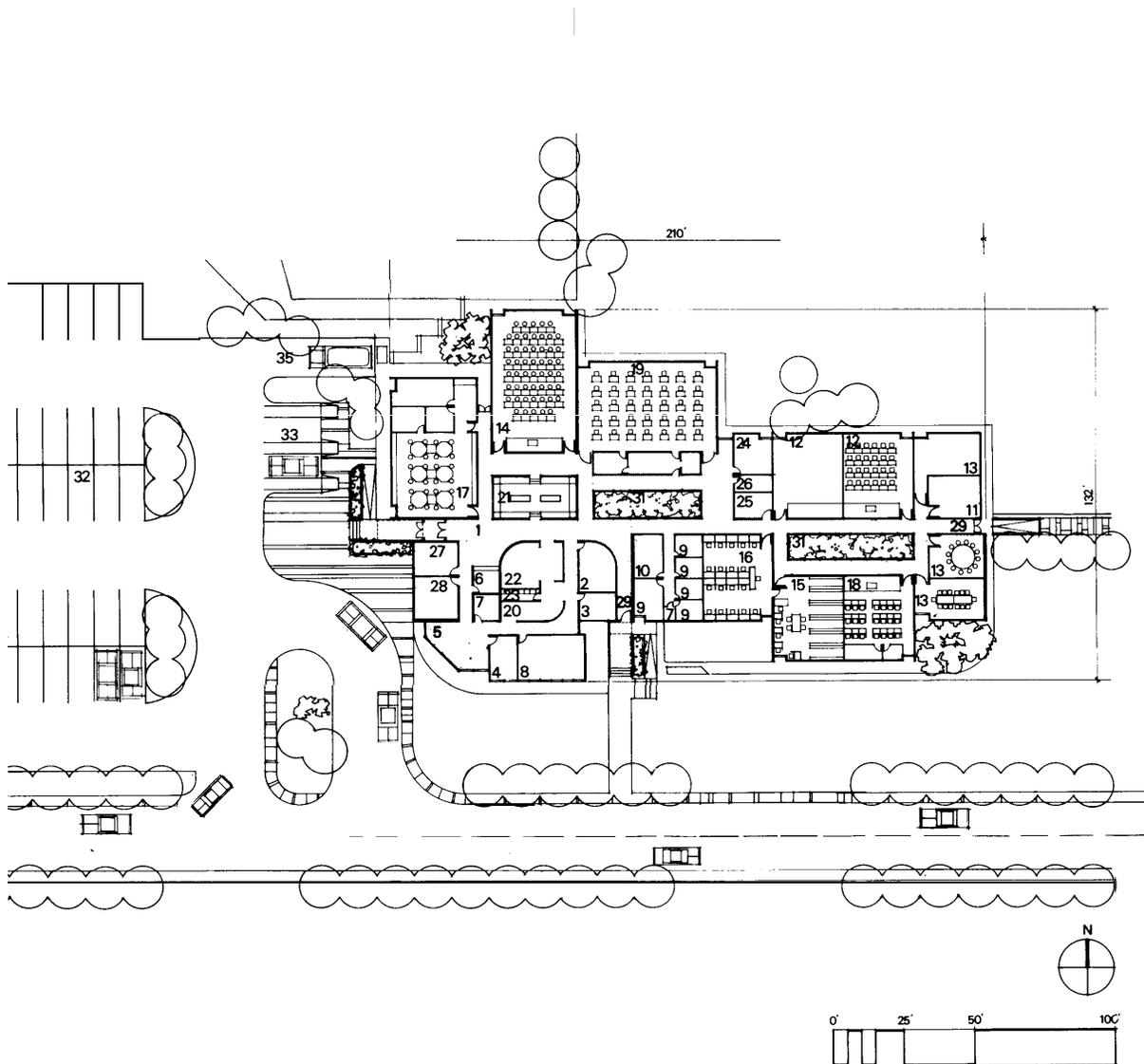


Figure 6-2 Example Plan-Scheme A Education Center for 6000 Military Strength

## EXAMPLE DESIGNS

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### 6-3 EXAMPLE DESIGN-SCHEME A-1 FOR 6,000 MILITARY STRENGTH

a. **SITUATION.** The requirements of this project are similar to those for Scheme A. However, in this case, the installation is located in an area that is subject to more severe weather conditions, particularly in the winter. The site, which is immediately adjacent to the Main Library, is very small and narrow, with limited space for development of parking facilities. However, the parking spaces available on the library site can be shared with the ACES Center given proper access provided by good site planning.

b. **PLANNING.** The authorized space allowance and staffing, and the enrollment and usage of the ACES Center are the same as determined in Scheme A. The space requirements are the same as those indicated in Table 6-8.

#### c. DESIGN SOLUTION.

(1) Basic Spatial Organization. This ACES Center, basically organized as a simple linear/modified axial scheme, is dictated by the configuration of the site. Due to the limited site area and the space requirements of the program, a two-story scheme is necessary. The two-story configuration also helps conserve energy by exposing less building surface to the elements. An axis perpendicular to the main linear axis is desired to connect the new ACES facility to the existing library as shown in Figure 6-3.

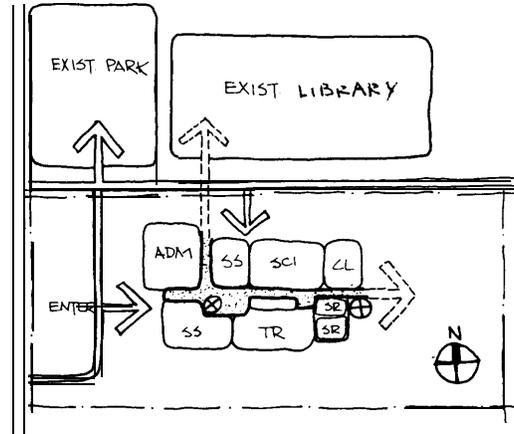


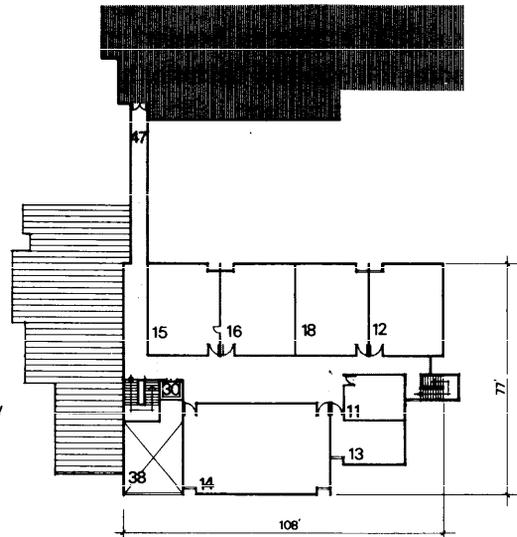
Figure 6-3 Basic Spatial Organization-Scheme A-1

(2) Example Plan. Staff and support spaces are located near the main and service entrances on the ground level as shown in Figure 6-4. Academic spaces are located on two floors with classroom, lecture room, MOS library and self-paced learning room located on the second floor, linked to the existing library. The 750 SF module again forms the basic layout system in this example solution.

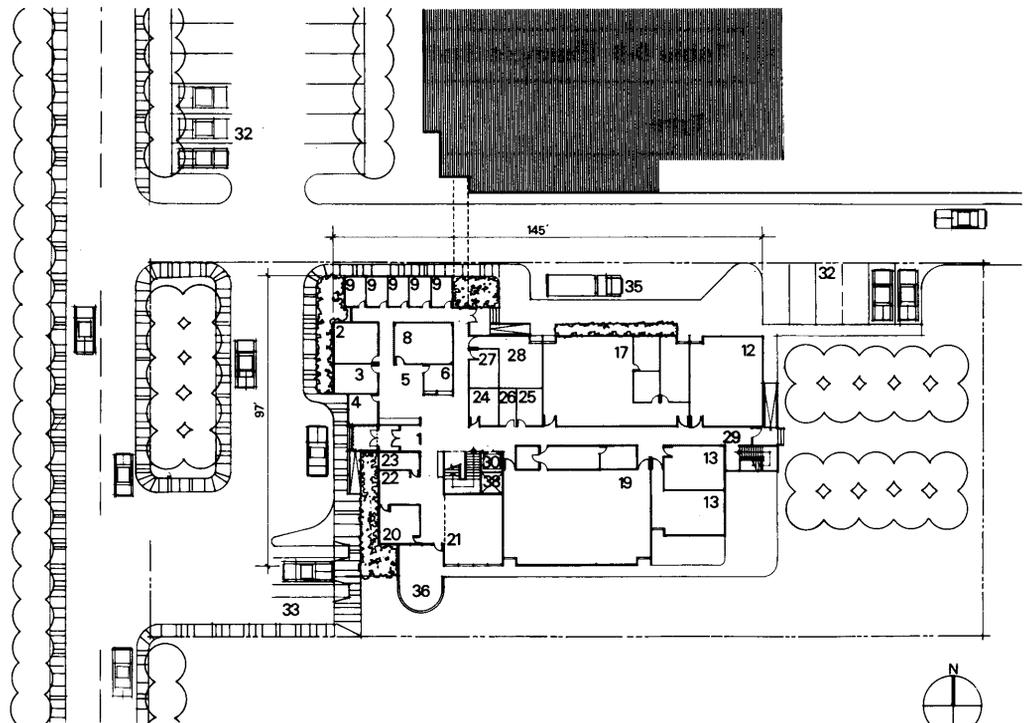
6-3 EXAMPLE DESIGN-SCHEME A-1 FOR 6,000 MILITARY STRENGTH (cont'd)

- 1. Entrance
- 2. Director
- 3. Administrator
- 4. Clerk
- 5. Typists
- 6. Information & Registration
- 8. Training Aids Preparation
- 9. Counselors
- 11. Rehearsal/Recording Studio
- 12. Classroom
- 13. Seminar Room
- 14. Lecture Room
- 15. MOS Library
- 16. Self-Paced Instruction
- 17. Science Lab
- 18. Language Lab
- 19. Testing Room and Related Facilities
- 20. Staff Lounge
- 21. Student Lounge
- 22. Vending Area

- 23. Vending Storage
- 24. Men's Toilet
- 25. Women's Toilet
- 26. Janitor's Closet
- 27. Receiving Room
- 28. General Storage
- 29. Secondary Entrance
- 30. Elevator
- 32. Student and Staff Parking
- 33. Handicapped Parking
- 35. Service Area
- 36. Terrace
- 38. Open Space over Lounge
- 47. Connector to Existing Library



SECOND FLOOR PLAN



FIRST FLOOR PLAN

Figure 6-4 Example Plan-Scheme A-1— Education Center For 6,000 Military Strength

## EXAMPLE DESIGNS

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### 6-4 EXAMPLE DESIGN-SCHEME B FOR 10,500 MILITARY STRENGTH

**a. SITUATION.** This project is located on an installation in the southwestern United States. Currently, the ACES activity is housed in several temporary buildings which are scheduled for demolition in order to build new bachelor housing. A new ACES Center site is identified on the master plan that is relatively large and irregular in configuration with a secondary road on the southern property line.

The ACES Program is projected to have a fairly constant scheduled enrollment of approximately 1050 people who will utilize facilities at various times during the week. Eventual growth of the Center is expected to take place primarily in the vocational training program. The Center will operate a full program five days per week and will offer a partial program on Saturday for a total operation of 48 hours per week.

#### **b. PLANNING DATA**

(1) Authorized Space Allowance. A 10,500 person (military strength) installation is allowed (Table 2-1 ) up to 27,440 GSF, excluding mechanical space, for an ACES Center.

(2) Staffing. Authorized staffing is shown in Table 6-9.

**Table 6-9 Example Staffing For Military Strength Of 10,500**

Type	No of Authorized Staff
Director	1
Administrator	2
Clerk	2
Typist	2
Registrar	1
Counselor	9
Total	17

(3) Gross Space Requirement. Table 6-10 summarizes the space required for this example. Although the computations are not shown in detail, the requirements are based on the staffing authorized in Table 6-9 and a projected enrollment and course requirement.

6-4 EXAMPLE DESIGN-SCHEME B FOR 10,500 MILITARY STRENGTH (cont'd)

**Table 6-10 Tabulated Space Requirements And Occupant Capacity  
Example For Military Strength Of 10,500**

	Load	SF
<u>Staff Spaces</u>		
Director	1	200
Administrators (2)	2	300
Clerks (2)	2	200
Typists (2)	2	150
Registrar	1	100
Information and Storage	—	250
Counselors (9)	9	900
Reference	—	150
Total Staff Capacity	17	2,250
<u>Academic Spaces</u>		
Classrooms (2)	50	1,500
Lecture Room	53	1,500
Seminar Rooms (3)	39	1,125
Self-Paced Instruction	20	750
MOS Library	9	750
Language Lab	22	750
Science Lab	25	1,500
Testing Room (2 classrooms)	50	1,905
Rehearsal/Recording Studio	6	375
	274	10,155
<u>Vocational Training Spaces</u>		
Auto Body Repair Shop	20	5,075
Heating/Refrig/AC Shop	20	2,200
	40	7,275
Total Student Capacity	314	
<u>Support Spaces</u>		
Staff Lounge		185
Student Lounge		685
Vending Area		375
Training Aids Preparation		500
Toilets-218 men (410 SF), 73 women (155 SF)		565
Toilets-Vo. Training Area, 36 men (255), 4 women (1 10)		365
Receiving/Gen. Storage		620
Janitor Closet		125
		3,420
Net. Total		23,100 NASF
Net to Gross Space at 15%		3,465
Gross Total (maximum allowable target 27,440 GSF)		26,565 GSF
Mechanical Space		300

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### 6-4 EXAMPLE DESIGN-SCHEME B FOR 10,500 MILITARY STRENGTH (cont'd)

#### c. DESIGN SOLUTION

(1) Basic Spatial Organization. This solution is developed around an outwardly oriented, axial organization scheme as shown in Figure 6-5. This takes advantage of the irregular site configuration and natural ventilation possibilities.

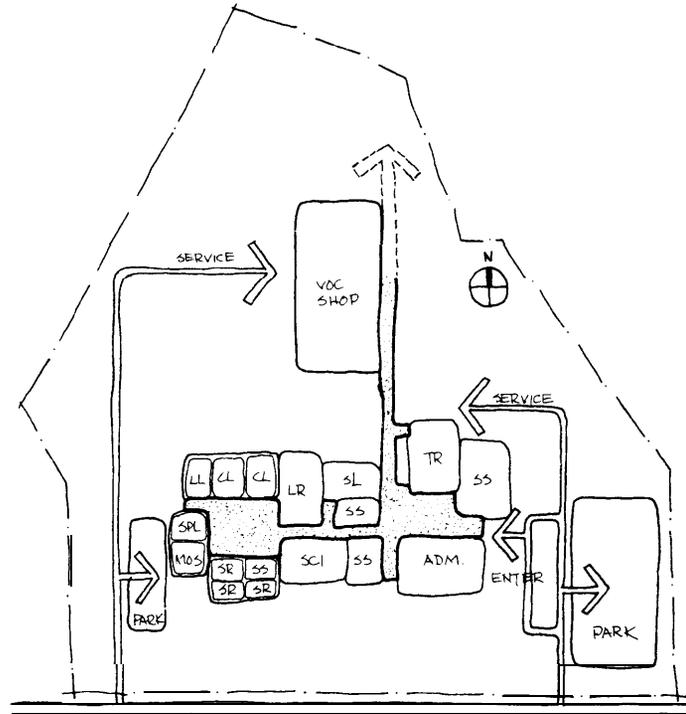


Figure 6-5 Basic Spatial Organization-Scheme B

(2) Example Plan. The plan radiates from a central student lounge space and courtyard near the main entrance. These spaces, and an additional courtyard in the academic area, provide volumetric rhythm to the space organization scheme and create focal points of natural light and greenery in conjunction with the viewing position/circulation paths. Staff, counseling, and support functions are located directly adjacent to the entrance area. The central student lounge space is adjacent to the lecture room and an outside demonstration area. Another, but smaller student lounge space, is adjacent to the vending area and outside terrace. Toilets are located near the center of the axis. Academic classrooms and laboratories are organized around the other interior courtyard. Vocational training shops are together in a separate structure connected to the academic/staff element by a covered pedestrian walkway. The 25 x 30 ft (750 SF) module forms the basic layout of the academic building. The larger 30 x 50 module has been used for the vocational training shops.

6-4 EXAMPLE DESIGN-SCHEME B FOR 10,500 MILITARY STRENGTH (cont'd)

- |                                 |                                |   |                                |
|---------------------------------|--------------------------------|---|--------------------------------|
| 1. Entrance                     | 8. Training Aids Preparation   | 15. MOS Library                         | 28. General Storage            |
| 2. Director                     | 9. Counselors                  | 16. Self-Paced Instruction              | 29. Secondary Entrance         |
| 3. Administrator                | 11. Rehearsal/Recording Studio | 17. Science Lab                         | 31. Landscaped Court           |
| 4. Clerk                        | 12. Classroom                  | 18. Language Lab                        | 32. Student and Staff Parking  |
| 5. Typists                      | 13. Seminar Room               | 19. Testing Room and Related Facilities | 33. Handicapped Parking        |
| 6. Information and Registration | 14. Lecture Room               | 20. Staff Lounge                        | 35. Service Area               |
| 7. Storage                      |                                | 21. Student Lounge                      | 36. Terrace                    |
|                                 |                                | 22. Vending Area                        | 37. Outdoor Demonstration Area |
|                                 |                                | 23. Vending Storage                     | 39. Shop Toilets               |
|                                 |                                | 24. Men's Toilet                        | 40. HVAC Shop                  |
|                                 |                                | 25. Women's Toilet                      | 44. Auto Body Repair Shop      |
|                                 |                                | 26. Janitor's Closet                    | 45. Auto Storage               |
|                                 |                                | 27. Receiving Room                      | 46. Fence                      |

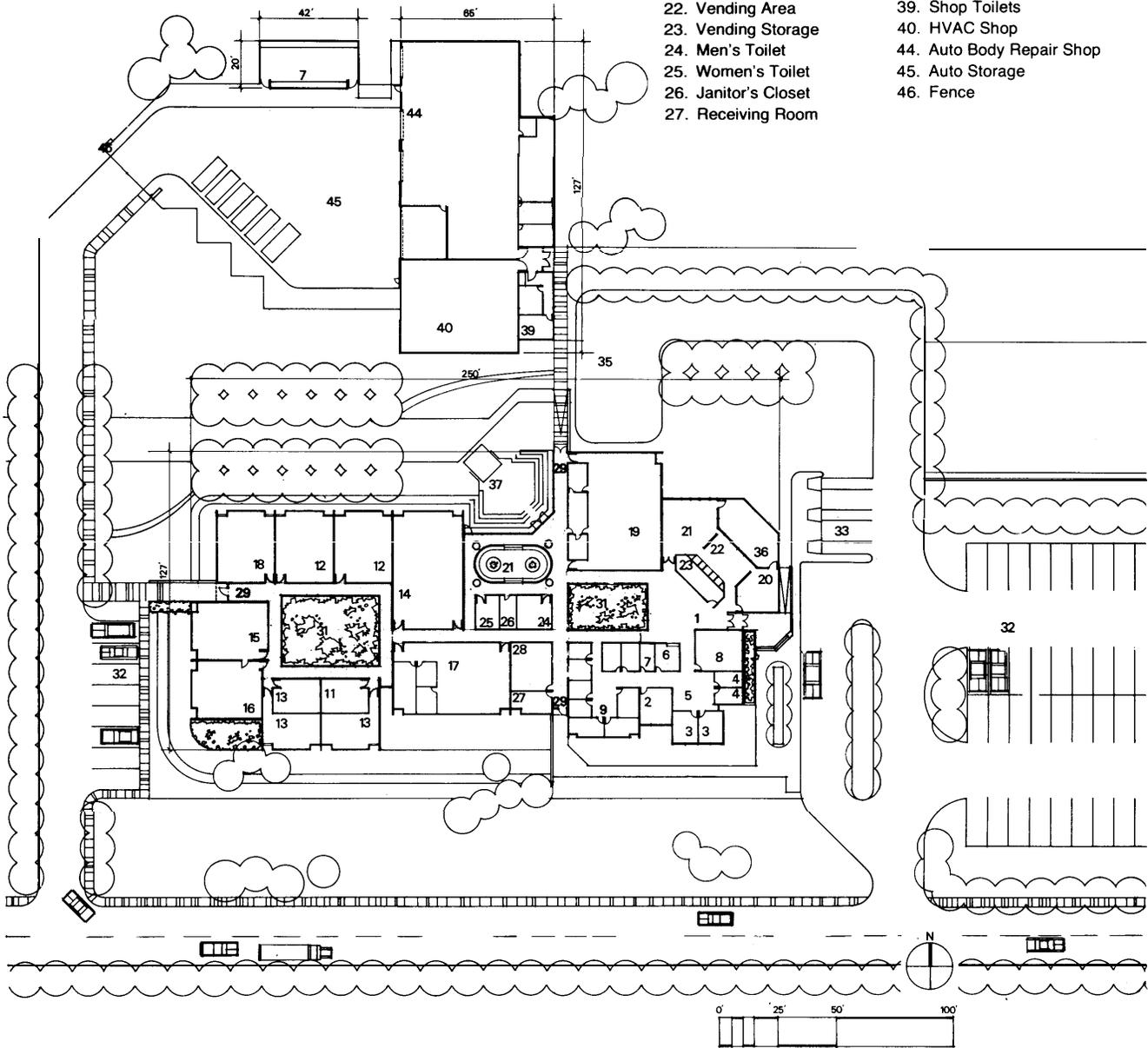


Figure 6-6 Example Plan Scheme-B—Education center for 10,500 Military Strength

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### 6-5 EXAMPLE DESIGN-SCHEME B-1 FOR 10,500 MILITARY STRENGTH

a. **SITUATION.** The mission, size and location of this project are the same as described in Scheme B, however, the site which has been designated on the master plan has a rock outcropping with a steep rise at the northeast corner which makes almost one-third of the site unusable. An existing library is located directly to the west.

b. **PLANNING.** The authorized space allowance and staffing, and the projected enrollment and usage of the ACES Center are the same as determined in Scheme B. The space requirements are the same as those indicated in Table 6-10.

#### c. DESIGN SOLUTION.

(1) Basic Spatial Organization. This solution is developed around a parallel organization scheme, as shown in Figure 6-7. Site features strongly influence the orientation of the scheme. Two parallel spines are developed; one for academic and staff spaces, and one for vocational training spaces. Requirements for parking space and for service and access to the vocational training area, make use of a two-story academic building desirable. Access to the main parking area runs between the academic and vocational training buildings.

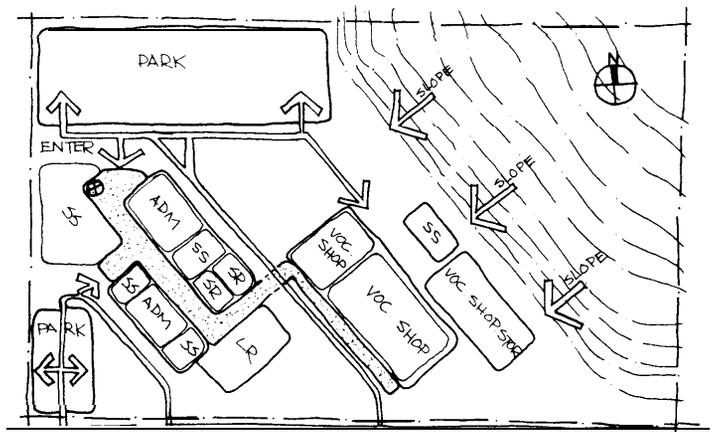
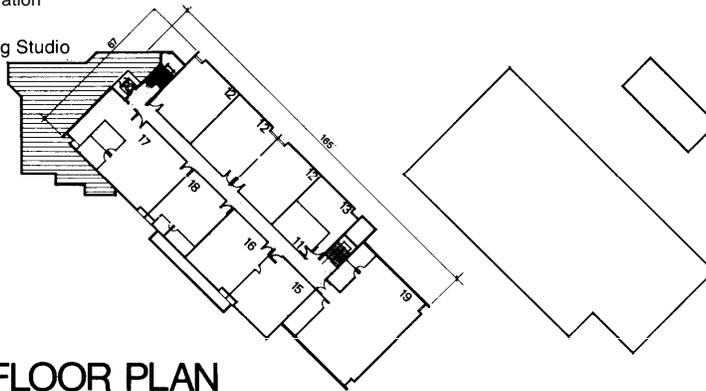


Figure 6-7 Basic Spatial Organization-Scheme B-1

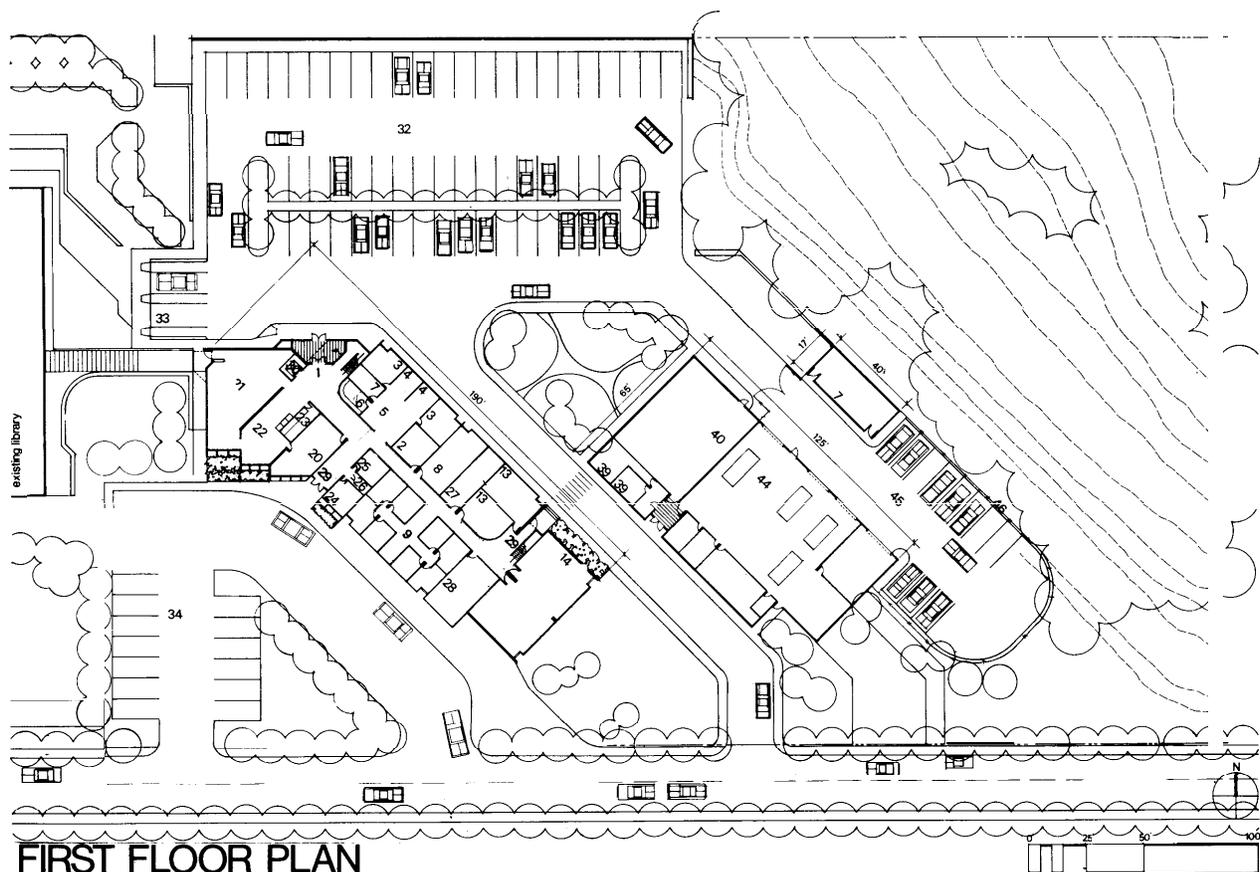
(2) Example Plan. As shown in Figure 6-8, the main entrance to the academic building is from the main parking area. Principal staff spaces have been placed adjacent to the main and secondary entrances for control purposes. The vending area and lounges are also located in this area which is the primary node for vertical circulation. Counselors are located on the ground floor in proximity to the administrative area and the Director's office. Lecture room and seminar rooms are located at one end of the ground floor adjacent to the circulation flow between the academic and vocational training buildings. The other academic spaces are located on the second floor. The primary pedestrian

6-5 EXAMPLE DESIGN-SCHEME B-1 FOR 10,500 MILITARY STRENGTH (cent'd)

- |                                 |  |                      |                                    |
|---------------------------------|--|----------------------|------------------------------------|
| 1. Entrance                     | 15. MOS Library                            | 21. Student Lounge   | 27. Receiving Room                 |
| 2. Director                     | 16. Self-Paced Instruction                 | 22. Vending Area     | 28. General Storage                |
| 3. Administrator                | 17. Science Lab                            | 23. Vending Storage  | 29. Secondary Entrance             |
| 4. Clerk                        | 18. Language Lab                           | 24. Men's Toilet     | 30. Elevator                       |
| 5. Typists                      | 19. Testing Room and<br>Related Facilities | 25. Women's Toilet   | 32. Student and Staff Parking      |
| 6. Information and Registration | 20. Staff Lounge                           | 26. Janitor's Closet | 33. Handicapped Parking            |
| 7. Storage                      |  |                      | 34. Registration & Visitor Parking |
| 8. Training Aids Preparation    |  |                      | 39. Shop Toilets                   |
| 9. Counselors                   |  |                      | 40. HVAC Shop                      |
| 11. Rehearsal/Recording Studio  |  |                      | 44. Auto Body Repair Shop          |
| 12. Classroom                   |  |                      | 45. Auto Storage                   |
| 13. Seminar Room                |  |                      | 46. Fence                          |
| 14. Lecture Room                |  |                      |                                    |



SECOND FLOOR PLAN



FIRST FLOOR PLAN

Figure 6-8 Example Plan Scheme B-1 - Education Center for 10,500 Military Strength

## EXAMPLE DESIGNS

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### 6-5 EXAMPLE DESIGN-SCHEME B-1 FOR 10,500 MILITARY STRENGTH (cont'd)

entrance to the vocational training shops is from the access road with service access on the opposite side. The basic 25 x 30 ft module has again been used throughout the academic and staff building with the larger 30 x 50 ft module used for the vocational training shops. The lecture room and testing room have been stacked due to relative size. The diagonal orientation of the ACES Center to the existing library creates a strong visual relationship between the two buildings. To strengthen that relationship, the lounge spaces have been oriented on the same axis as the library with a covered pedestrian link between.

### 6-6 EXAMPLE DESIGN-SCHEME C FOR 21,000 MILITARY STRENGTH

**a. SITUATION.** This project is located on an installation in the southeast United States. The new ACES Center will replace a number of classroom facilities which are scattered in temporary structures throughout the installation. It will also supplement a vocational training unit which is located within a 10-minute walking distance. The site designated on the master plan is generous in size, with a primary road defining the site on the south. The long dimension of the site (approximately 750 ft) runs parallel to the road.

The use of the Center is projected to be high. Current enrollment in ACES programs is almost 1000. The projected semester enrollment will be approximately 1750. The ACES Center will operate on a 44 hour week, including evening and Saturday classes.

**b. PLANNING DATA.**

(1) Authorized Space Allowance. A 21,000 person (military strength) installation is allowed (Table 2-1 ) up to 38,080 GSF, excluding mechanical space, for an ACES Center.

(2) Staffing. Authorized staffing is shown in Table 6-11.

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**Table 6-11 Example Staffing for Military Strength of 21,000**

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Type	No. of Authorized Staff
Director	1
Administrator	3
Clerk	4
Typist	4
Registrar	1
Counselor	17
TOTAL	30

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6-5 EXAMPLE DESIGN-SCHEME B-1 FOR 10,500 MILITARY STRENGTH (cont'd)

(3) Gross Space Requirement. Table 6-12 summarizes the space required for this example.

**Table 6-12 Tabulated Space Requirements and Occupant Capacity  
Example for Military Strength of 21,000**

	Load	SF
<u>Staff Spaces</u>		
Director	1	200
Administrators (3)	3	450
Clerks (4)	4	400
Typist (4)	4	300
Registrar	1	100
Information and Storage	—	350
Counselors (17)	17	1,525
Reference	.	150
<b>Total Staff Capacity</b>	30	<u>3,475</u>
<u>Academic Spaces</u>		
Classrooms (4)	100	3,000
Lecture Room	53	1,500
Seminar Rooms (5)	65	1,875
Self-Paced Instruction	20	750
MOS Library	9	750
Language Lab	22	750
Science Lab	25	1,500
Testing Room (2 classrooms)	50	1,905
Rehearsal/Recording Studio	6	375
	350	<u>12,405</u>
<u>Vocational Training Spaces</u>		
Auto Mechanics Shop	20	5,850
Masonry Shop	20	4,150
Communications/Industrial Electronics Shop	20	2,525
	60	<u>12,525</u>
<b>Total Student Capacity</b>	410	
<u>Support Spaces</u>		
Staff Lounge		240
Student Lounge		875
Vending Area		475
Training Aids Preparation		635
Toilets – 286 men (500 SF) 95 women (200 SF)		700
Toilets – Vo. Training Area 54 men (415) 6 women (115)		530
Receiving/Gen. Storage		795
Janitor Closet		160
		<u>4,410</u>
Net Total		32,815 NASF
Net to Gross Space at 15%.		4,925
Gross Total (maximum allowable target – 38,080 GSF)		37,740 GSF
Mechanical Space		400

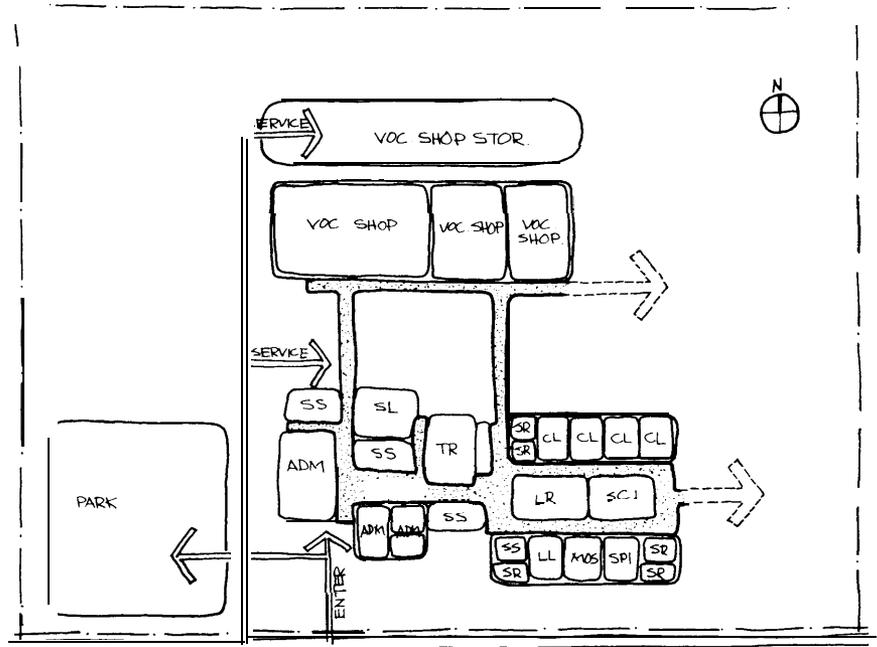
**EXAMPLE DESIGNS**

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**6-6 EXAMPLE DESIGN-SCHEME C FOR 21,000 MILITARY STRENGTH (cont'd)**

**c. DESIGN SOLUTION**

(1) Basic Spatial Organization. This solution is developed around the parallel organization scheme. Two linear spines are created parallel to each other, following the long dimension of the site as shown in Figure 6-9. The academic-staff area is developed along one spine and the vocational training shops are located along the other. Parking is located near the main entrance to the academic spaces with service access extending to the north side of the vocational training spaces.



**Figure 6-9 Basic Spatial Organization — Scheme C**

(2) Example Plan. The academic-staff building is organized into two basic functional zones as shown in Figure 6-10; staff and support spaces are grouped around an interior court at the main entrance and academic spaces are grouped around the lecture room and science lab. The student lounge and the toilets are located near the main entrance and adjacent to the primary circulation flow between the academic building with the vocational training shops. The student lounge is oriented toward an outdoor terrace and landscaped instructional area between the two parallel buildings. Visual experiences are created in the circulation spaces of the academic-staff building by use of curved walls, proportional variation, and natural greenery to establish focal points and visual rhythm. The basic 25 x 30 ft module is used for the academic-staff spaces with the 30 x 50 ft module utilized for the vocational shops.

6-6 EXAMPLE DESIGN-SCHEME C FOR 21,000 MILITARY STRENGTH (cont'd)

- |                                 |  |   |
|---------------------------------|--|---|
| 1. Entrance                     | 16. Self-Paced Instruction                 | 29. Secondary Entrance                            |
| 2. Director                     | 17. Science Lab                            | 31. Landscaped Court                              |
| 3. Administrator                | 18. Language Lab                           | 32. Student and Staff Parking                     |
| 4. Clerk                        | 19. Testing Room and<br>Related Facilities | 33. Handicapped Parking                           |
| 5. Typists                      | 20. Staff Lounge                           | 35. Service Area                                  |
| 6. Information and Registration | 21. Student Lounge                         | 36. Terrace                                       |
| 7. Storage                      | 22. Vending Area                           | 39. Shop Toilets                                  |
| 8. Training Aids Preparation    | 23. Vending Storage                        | 41. Communications/Industrial<br>Electronics Shop |
| 9. Counselors                   | 24. Men's Toilet                           | 42. Masonry Shop                                  |
| 11. Rehearsal/Recording Studio  | 25. Women's Toilet                         | 43. Auto Mechanics Shop                           |
| 12. Classroom                   | 26. Janitor's Closet                       | 45. Auto Storage                                  |
| 13. Seminar Room                | 27. Receiving Room                         | 46. Fence   |
| 14. Lecture Room                | 28. General Storage                        |   |

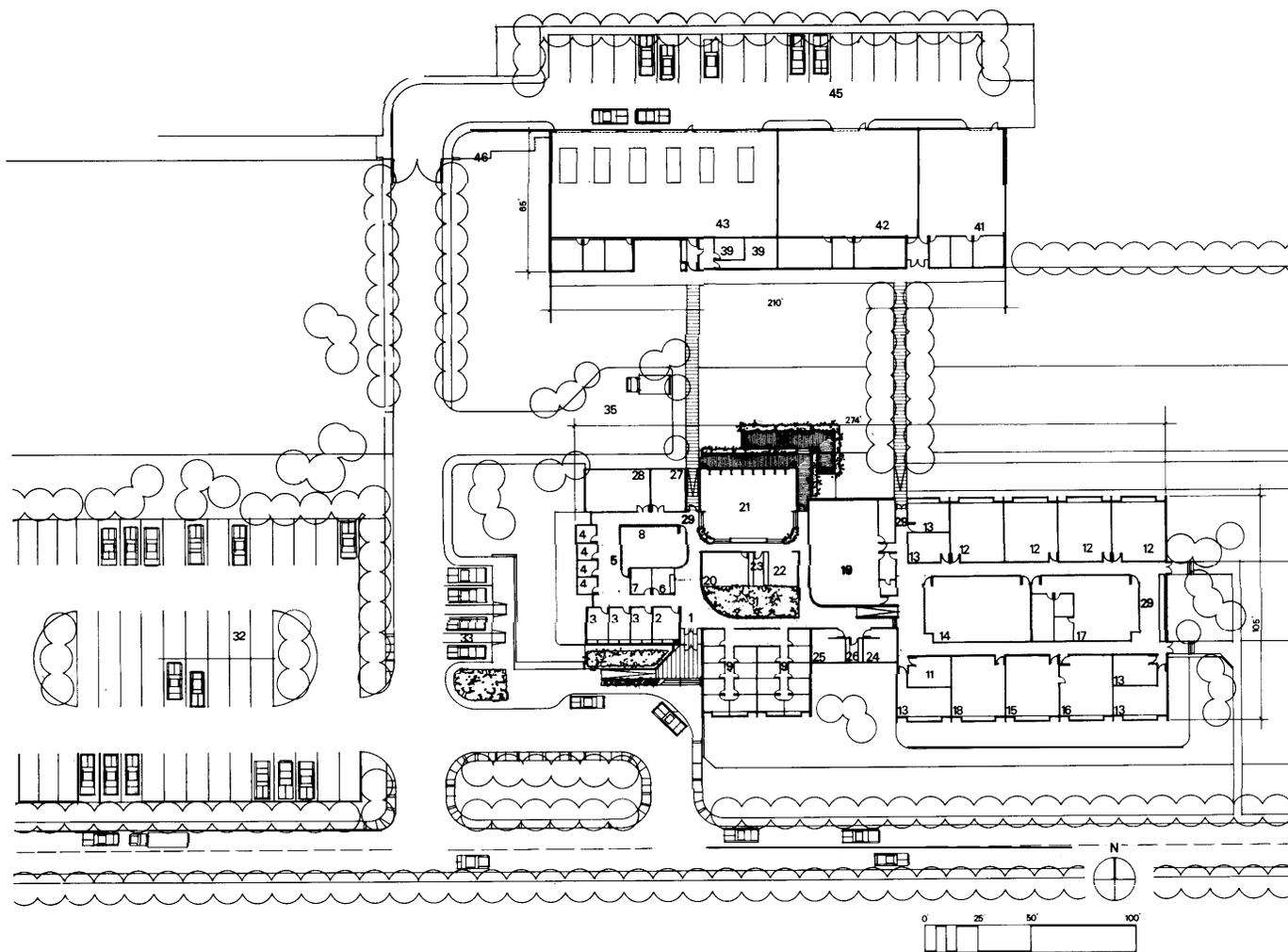


Figure 6-10 Example Plan-Scheme C - Education Center for 21,000 Military Strength

## EXAMPLE DESIGNS

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### 6-7 EXAMPLE DESIGN—SCHEME C-1 FOR 21,000 MILITARY STRENGTH

**a. SITUATION.** The mission, size and location of this ACES Center project are the same as described in Scheme C, however, the site designated on the master plan is relatively small in size and triangular in shape. The site is bounded by a wooded area on the north and the primary road on the west. There are excellent views to the west.

**b. PLANNING.** The authorized space allowance and staffing, and the projected enrollment and usage of the ACES Center are the same as determined in Scheme C; the space requirements are the same as those indicated in Table 6-12.

#### **c. DESIGN SOLUTION.**

(1) Basic Spatial Organization. This solution is developed around a dispersed organization scheme as shown in Figure 6-11. The limited site area makes use of a two-story academic building desirable. Topographic features and views, in addition to site configuration, influence the spatial organization in this solution. The academic building is placed parallel to the road to take advantage of the views. Vocational training shops are developed on a spine perpendicular to the academic building. Main entry to the ACES Center is serviced by a loop road on the south. Service access to the vocational training area is provided by a road along the north side and center of the site.

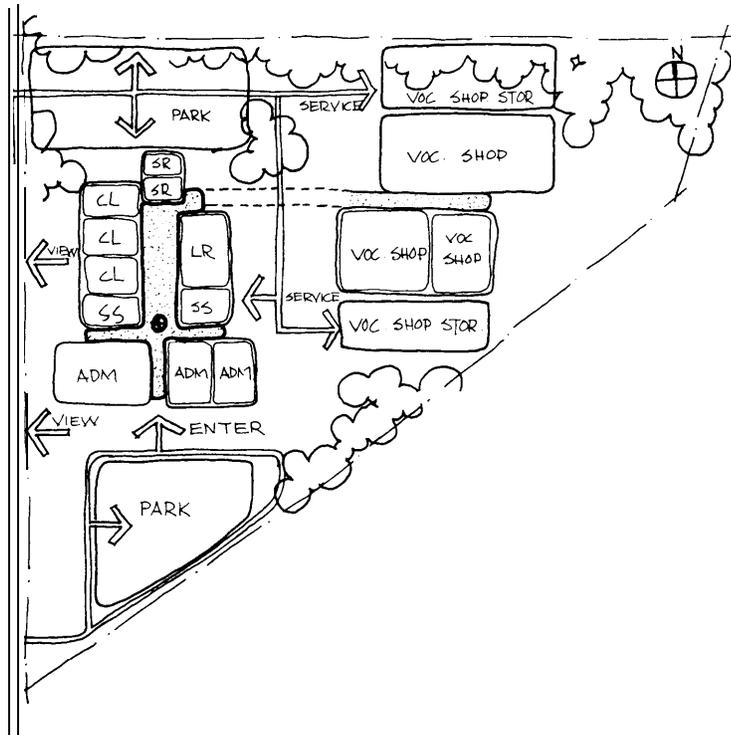


Figure 6-11 Basic Spatial Organization—Scheme C-1

**6-7 EXAMPLE DESIGN-SCHEME C-1 FOR 21,000 MILITARY STRENGTH (cont'd)**

(2) Example Plan. Two distinct structures have been developed as shown in Figure 6-12. A two-story academic building is developed around a high interior court and vertical circulation nodes with classrooms, staff offices, lounges and balcony-terrace located to take advantage of the view. Vocational training shops are organized along a double-loaded corridor with the ancillary functions, including toilets with showers and lockers, located on either side of the corridor. The basic 25 x 30 ft module is used in the academic building with the larger testing room, and its related spaces, stacked over a similiarized module containing the counselor offices. The 30 x 50 ft module is used for the vocational training spaces.

## EXAMPLE DESIGNS

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### 6-7 EXAMPLE DESIGN-SCHEME C-1 FOR 21,000 MILITARY STRENGTH (cont'd)

1. Entrance
2. Director
3. Administrator
4. Clerk
5. Typists
6. Information and Registration
7. Storage
8. Training Aids Preparation
9. Counselors
11. Rehearsal/Recording Studio
12. Classroom
13. Seminar Room
14. Lecture Room
15. MOS Library
16. Self-Paced Instruction
17. Science Lab
18. Language Lab
19. Testing Room and Related Facilities
20. Staff Lounge
21. Student Lounge
22. Vending Area
23. Vending Storage
24. Men's Toilet
25. Women's Toilet
26. Janitor's Closet
27. Receiving Room
28. General Storage
29. Secondary Entrance
31. Landscaped Court
32. Student and Staff Parking
33. Handicapped Parking
35. Service Area
36. Terrace
39. Shop Toilets
41. Communications/Industrial Electronics Shop
42. Masonry Shop
43. Auto Mechanics Shop
45. Auto Storage
46. Fence

6-7 EXAMPLE DESIGN-SCHEME C-1 FOR 21,000 MILITARY STRENGTH (cont'd)

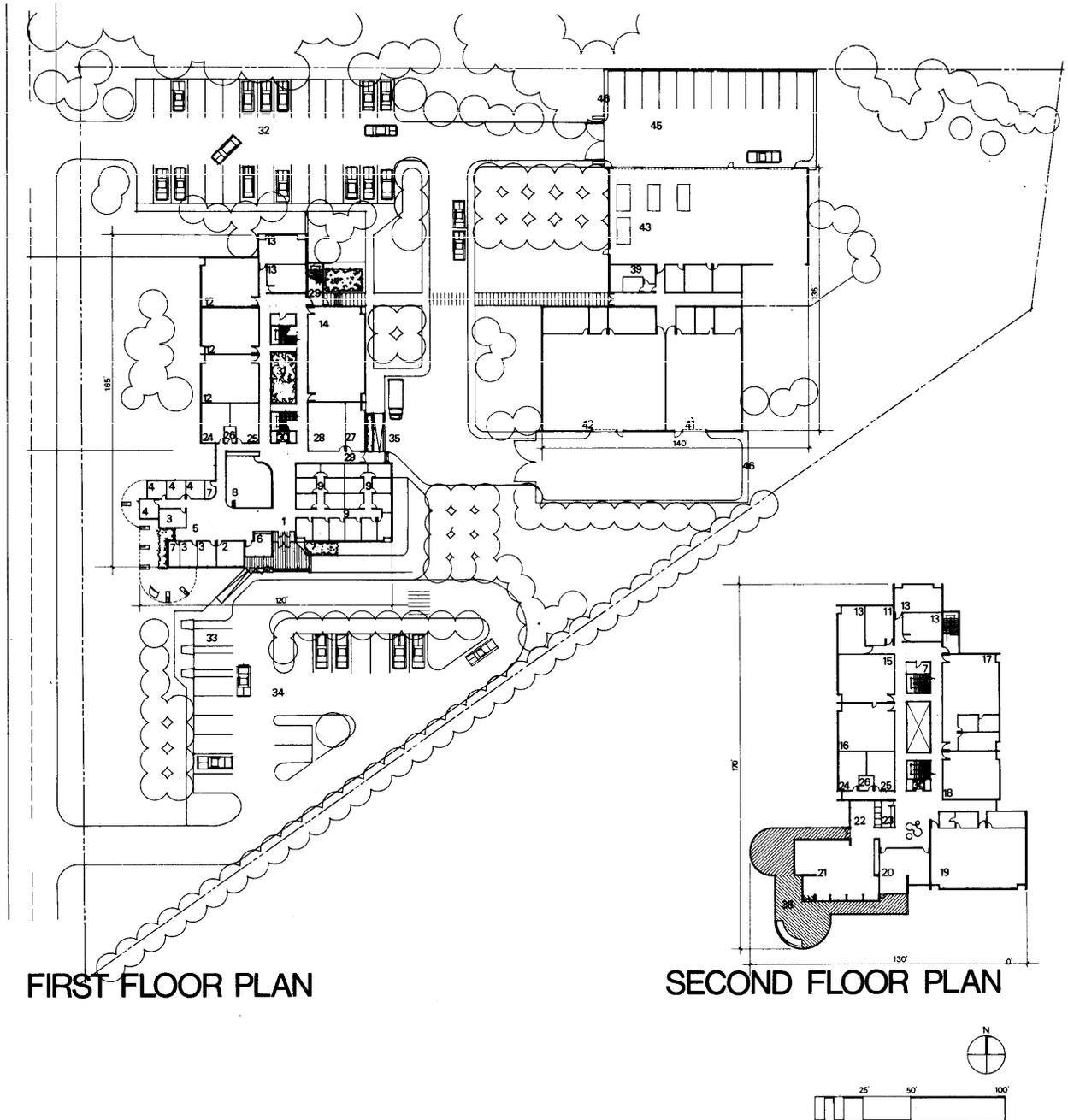


Figure 6-12 Example Plan—Scheme C-1—Education Center for 21,000 Military Strength