CHAPTER 4
Space Planning Concepts

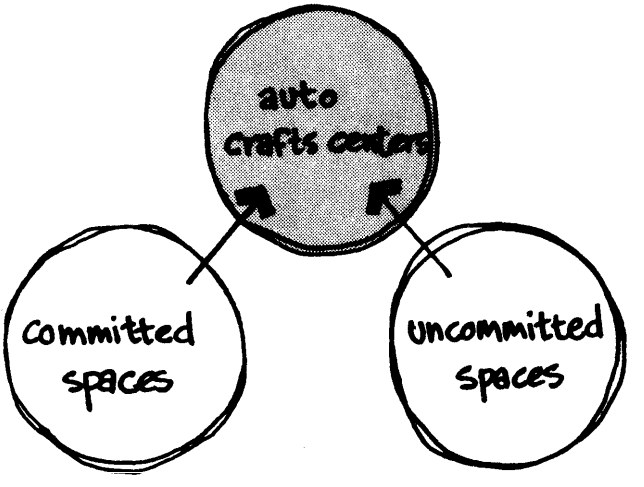
4-1 Conceptual Diagrams

a. Space planning involves arranging the elements of a plan in response to the functional requirements of the programmed activities. The interrelationships of the activities themselves are the most variable factors in the interpretation of the program. Planning, however, must take into account the probability that future space requirements will change because of program modifications.

b. Most buildings incorporate two types of spaces: committed and uncommitted. Committed spaces are those that are designed or used for only a particular activity because of specific requirements or spatial configuration. On the other hand, uncommitted spaces have an amorphous character, allowing them to be used for many unspecialized functions.

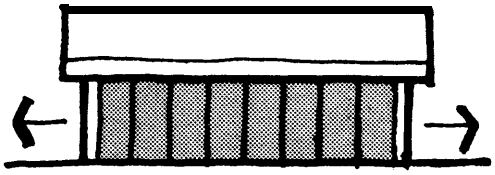
c. Auto craft activities require both types of spaces. Part of the planning process is to identify and, where possible, consolidate those conflicting spaces which have similar environmental requirements, while separating those conflicting ones.

d. The conceptual diagrams that follow illustrate design concepts for the building as a whole responding to differing climatic conditions, site constraints, and space use requirements.

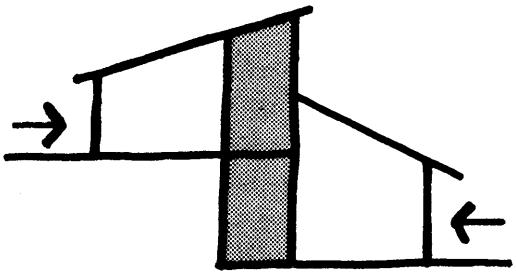


Space Types

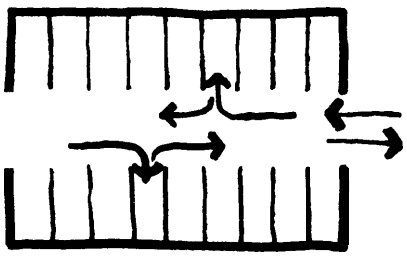
Diagrams



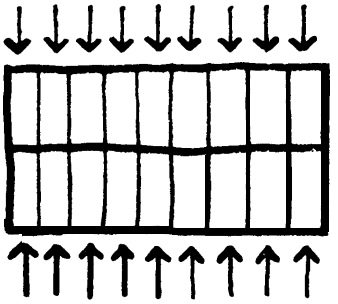
(1) *Horizontal* design concept best suits an unrestricted level site, with direct indoor-outdoor access and flow between activities. Initial construction cost is lower and expansion can occur more readily.



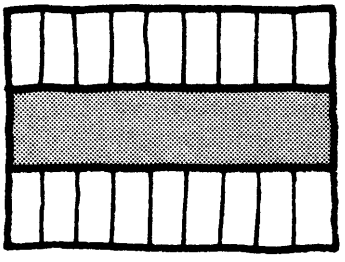
(2) *Vertical* design concept may be required to meet site or terrain restrictions but care is required for vertical continuity and communication.



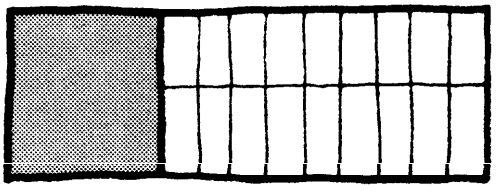
(3) *Internal Access* design concept utilizes interior aisles for vehicular circulation and access to work areas.



(4) *External Access* design concept takes advantage of exterior areas for vehicular circulation and access to work areas. This eliminates the need for indoor aisles but increases the number of exterior doors required.



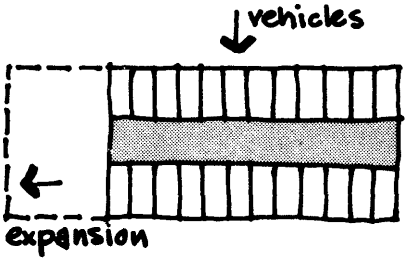
(5) *Central and Linear Core* design concepts have work areas oriented around central support facilities.



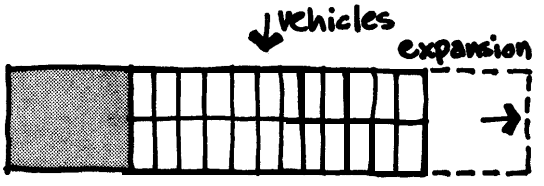
(6) *Separated Core* design concept places support functions in a committed space isolated from work areas.

4-2 Functional Layouts

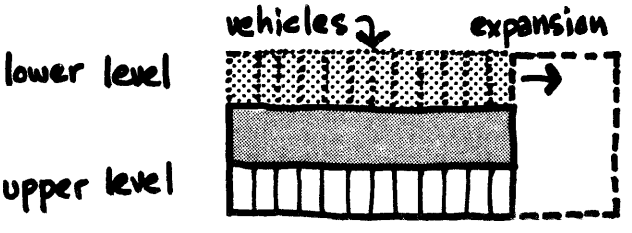
a. The following layouts indicate various concepts for the arrangement of the major functional areas of an Auto Crafts Center. The core area shown in a gray tone includes the support facilities such as the machine and welding shop, office, tool issue and parts sales, classroom, storage and toilets. The areas shown in white are the auto stalls and the arrows indicate vehicular circulation. It should be noted that the circulation pattern is always a primary design factor.



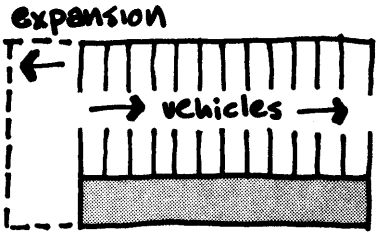
b. Layout using *horizontal, linear core* and *external access* concepts. This layout provides convenient access to support facilities from the auto stalls. In warm weather, individual auto stall doors can be opened to provide good ventilation; however, the large number of doors increases heat loss in cold weather. This plan minimizes interior vehicular circulation space and permits visual control of the entire work area, although it provides no central control of vehicles entering and leaving the building.



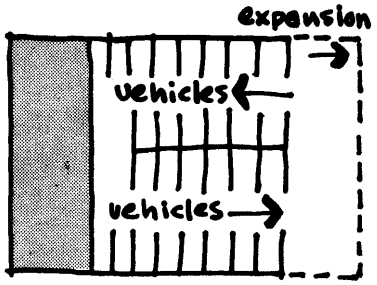
c. Layout using *external access* and *separated core* concepts. This layout has the advantages of excellent natural ventilation in warm weather and a minimum amount of space used for interior vehicular circulation. Disadvantages include high heat loss in cold weather, high initial cost of providing many overhead doors, a long distance between the core area and some of the auto stalls, and poor control of vehicles entering and leaving the building.



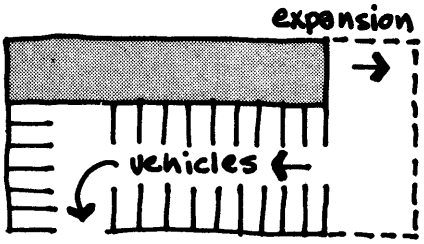
d. Layout using *vertical, linear core* and *external access* concepts. To take advantage of site conditions, a two level layout can be developed using the above concepts. The disadvantage of this layout may be the intercoordination of functions and activities.



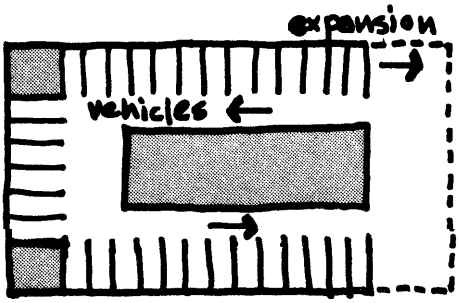
e. Layout using *internal access* and *linear core* concepts. This layout has a vehicular entrance and exit at opposite ends of the building which reduces heat loss and initial cost of overhead doors. The plan allows control of vehicles entering and leaving the building, however, it also requires much more space devoted to the interior circulation of vehicles.



f. Layout using *internal access* and *separated core* concepts. This U-shaped aisle layout has both vehicle entrance and exit on the same side of the building. This plan is particularly appropriate when site conditions restrict vehicular access to one side of the building. Although the plan minimizes exterior vehicle circulation space, more interior space is required for turning.



g. Layout using *internal access* and *linear core* concepts. This L-shaped aisle layout is appropriate for a site restricted on two adjacent sides. The plan provides good control of vehicular circulation, however, additional space is required for turning.



h. Layout using *central core* and *internal access* concepts. This layout has a very compact form and a single vehicle entrance/exit which are both advantageous in very cold climates. Although traffic flow is easy to supervise with only one entrance and exit, some interior space is lost because of single loaded aisles and area needed for turning.