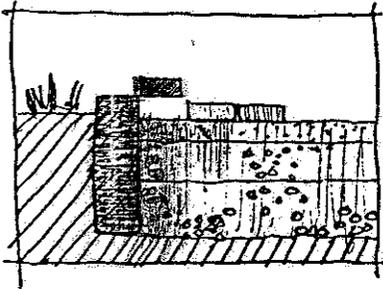


Construction Principles

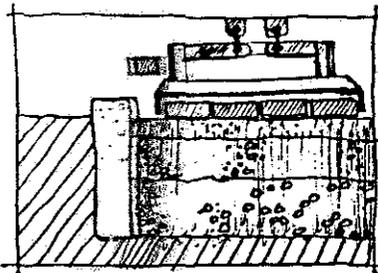
Although there is much to be said about the actual construction process and installation procedures for concrete pavers, this section will only concentrate on those issues that have a direct bearing on the early stages of the design process. The intent is to introduce principles that will guide the overall design and therefore the reader is referred to the **RESOURCE** section for detailed, specific information about laying techniques, construction practices, or proper procedures for installing concrete pavers.

This section focuses on the principles of construction that affect the process of design. The basic principles fall into two categories of information;



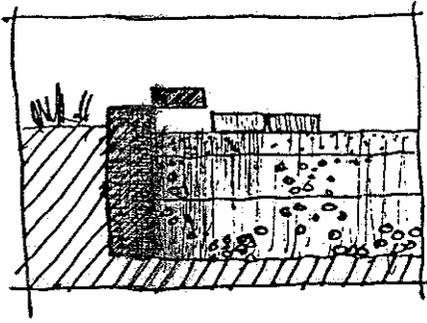
Edge Integration

Describes the design integration of the structural edges of a paved surface.



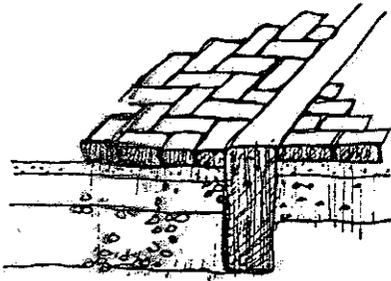
Installation Methods

Describes the two basic methods (hand and mechanical means) for installing concrete pavers and their affect on design options.



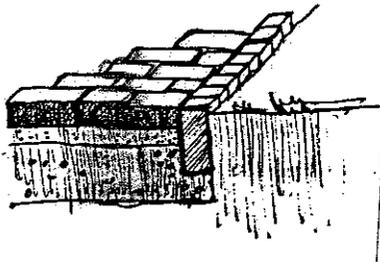
Edge Integration

The necessity of edge restraint requires design consideration of the edge type prior to placement of the units. In general, the heavier the load application, the more thought must be given to the edge restraining system and the paved surface at early stages of design. This forethought is necessary for the highest degree of final design integration of the edge with the paved surface. The three edge integration techniques illustrated and described below are ordered from highest degree of design required and heaviest load carrying capacity to lowest degree of design required and least capacity for carrying load.



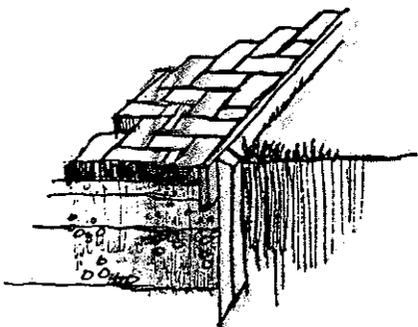
PRE-PLACED EDGES

These edges are tall and buried within the earth to provide the maximum horizontal force. They are typically chosen for heavy load applications and include cast in place concrete curbs, granite curbs or precast concrete edges. Since they are placed prior to the placement of the pavers, the paver pattern must be accurately predicted for proper ending of the patterns at the edges. In most cases, the pavers must be interrupted to conform to the shape of the pre-placed edges.



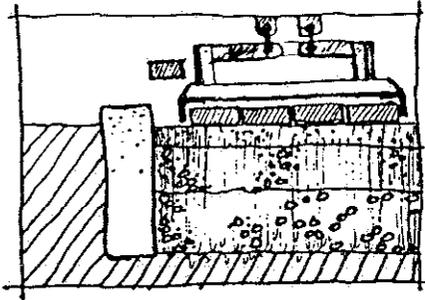
INTEGRALLY PLACED EDGES

These edges are placed integrally with the placement of the pavers. They can be buried to a shallow depth and offer some resistance to horizontal forces. The edges include paving units turned on edge, concrete or stone curb units or sections of treated lumber. Since the edges and the pavers are placed together, design integration of the pattern with the edge can be more readily accomplished without interrupting the paver pattern.



POST PLACED EDGES

These edges offer the least resistance to horizontal forces but are the most simple to install. These include concrete mowing strips, PVC plastic edging, metal edge strips, or simply compacted earth adjacent to the pavers. These edges require the least forethought since they are placed against the completed pattern of pavement.



Installation Methods

The segmental nature of the concrete pavers results in the necessity to install many small individual elements to achieve a large paved plane. The obvious increase in labor and time for installation of the pavers has resulted in the development of two common techniques for the placement of paving units. Both have advantages and disadvantages in design that are diametrically opposed. In vast areas of paving it is possible to use both techniques in order to capitalize on each of their strengths.



HAND PLACED UNITS

The most common installation method employs human hands for the placement of the individual units. Although this technique is time consuming and labor intensive, it offers the greatest ability to have variety in the design by altering the pattern or color of individual units or by introducing a mural or mosaic to the overall.

MECHANICALLY PLACED UNITS

This installation technique utilizes a small truck and clamp to place units in groups. The truck can place a grid of interlocking units into the same pattern at a much quicker rate than hand placement of the units. The obvious limitation in design is the lack of variety that results from the necessity of repeating the same pattern. When designing it is important to consider the group module laying pattern. Attention to the module and pattern can improve overall integration of edges and can reduce costly manual involvement. It is possible to introduce the variety in the larger grid that the truck picks up. However, this requires a great deal of forethought when stacking and placing the units and therefore is not common practice.

