

## PART THREE

# ZONE DISCUSSION

## CHAPTER 8

# SITE DESIGN CRITERIA

The purpose of this chapter is to provide visual instructions regarding choices to be made concerning Site Design.

### SECTION A

## GENERAL CONCEPTS

#### Process

The process of site design includes arranging related building components, organizing vehicular, pedestrian and bikeway circulation systems, locating parking areas, providing utilities and detailing site amenities, signing and lighting, all while retaining sensitivity to the existing landscape.

#### Site Analysis

Using an analysis of all the existing physical and aesthetic features of the site the design program requirements and the site's relationship to the entire installation, a site design is created. The design synthesis to be chosen should be the scheme which best articulates the many factors listed above in relation to the desired architectural theme and which results in a total organization of visually unified forms.

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A complete site analysis will be composed of six types of studies:

- Land Use
- Circulation
- Visual Design Factors
- Context
- Natural Elements
- Landscaping

### Land Use

Land Use considerations should be developed, based on a resolution of the building program and the site analysis. "It shows the general functional arrangement of a plan in terms of types of activities, linkages and densities." (A Guide to Site and Environmental Planning, Second edition, 1980, Harvey M. Rubenstein, pg 53.) Linkage refers to the connections between building elements and between land uses such as the movement of people; density refers to standards which control the number of people allowable per acre.

### Circulation

Circulation Studies are concerned with efficiently moving people, goods and services about a site. Special areas of interest are site entrance points, road hierarchies, parking and separation of service entrances. Each circulation system must be logical sequentially yet not conflict with another form. Circulation systems already in use at Fort Lewis are composed of grid systems, radial roads and curvilinear systems. Road alignments should emphasize

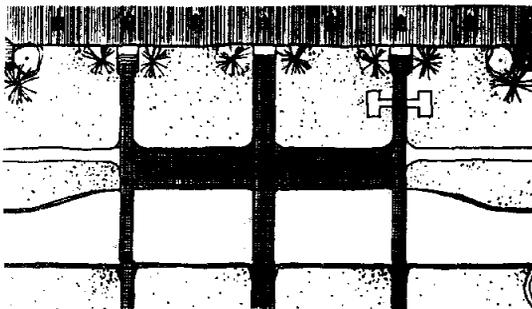


Fig F-8-A

views of buildings of importance and should follow the existing topography as closely as possible. Arrival and turnaround areas should be designed for right-handed passenger drop-offs (Fig F-8-A). Visitor parking should be separated from employee parking; service areas should be separated from parking areas.

Pedestrian circulation systems must provide a safe, convenient link between buildings, outdoor spaces and parking areas (Fig F-8-B). Considerations must be given to make the system accessible to wheelchairs also. Hierarchy, alignment and topography are important walk considerations. Bikeways have special requirements, and space must be provided for bicycle parking also.

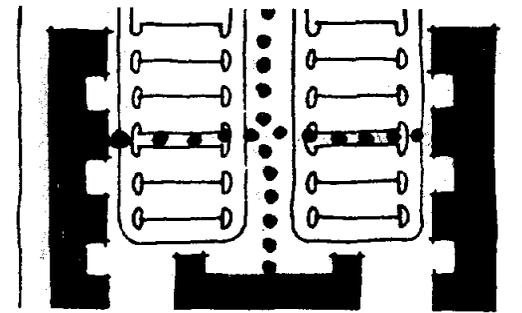


Fig F-8-B

### Visual Design Factors

It is important to visually unify all the building forms and spaces which exist in a building complex. Providing understandable, recognizable parts leads to the creation of a coherent overall design. Some of the design elements which contribute to this process are clearly defined shape characteristics of buildings and spaces (form), recognizable volumes of spaces and a sense of enclosure by them.

### Context

Creating an image that is correct within the context of a Zone also helps create a sense of identity for each space. Each Zone requires separation from adjacent land uses by a linear boundary or edge, which may be accomplished

through the use of landscaping; see Landscaping Design Guideline 2.

## Natural Elements

The natural elements of site analysis to be studied include:

- Geology - bedrock and surface
- Topography - landform characteristics
- Hydrology - surface and groundwater.
- Soils - classification of types and uses.
- Vegetation - plant ecology.
- Wildlife - habitats.
- Climate - wind, precipitation and humidity.
- Solar orientation

## Landscaping

Natural landscaping elements of the existing topography include earth, rock and water. Extensive utilization of these natural features provides visual variety to the design, and should be considered when site materials are selected.

Site designs are enhanced by the sensitive addition of landscape materials to flatter the existing landscape. Additional trees generally provide the greatest benefit per dollar. The occasional addition of small oases of intensively landscaped areas will provide great improvement to the overall landscape. Landscaping's importance in improving Fort Lewis visually should be recognized and made a priority.

## Site Development

Building and parking lot arrangement are the major components of site development. Landscaping is an integral part of both and covered in detail in Section B.

## Building Arrangement

This section explains the desired spatial relationship between buildings. In accordance

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with climatic considerations, the recommended shape for a single building is a rectangle elongated along the east-west axis, thus facing the long facade of the building slightly east of south. Although the standard military design of most buildings uses central, double-loaded corridors, living spaces, when possible, should be oriented toward the south. When a grouping of buildings is required, the best choice will be for the arrangement to have a long (E-W axis) central building with short wings (N-S axis) and the entire open courtyard or plaza facing slightly east of due south (Fig F-8-C).

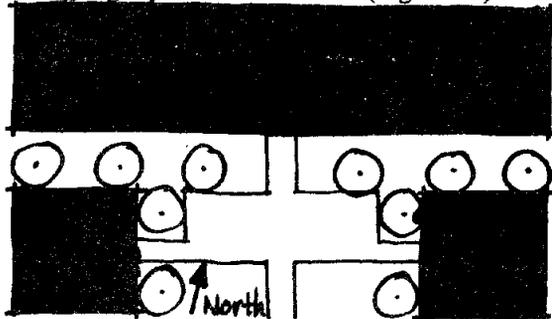


Fig F-8-C

With proper landscaping, this arrangement would provide users of the buildings and courtyards with shelter from the winter winds and with sunlit outdoor spaces. Care must be taken to size and space buildings so that solar access is not denied. To that end, projected building shadows should be plotted during the building design phase. At other times, a building plan with staggered elements may best solve the site problem yet still allow solar access into habitable spaces. In the Headquarters/Administration areas and anywhere else a sense of

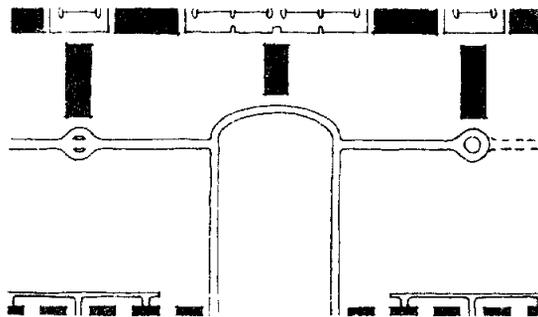


Fig F-8-D

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military hierarchy is desired, a symmetrical arrangement of buildings or groups of buildings shall be chosen to create a formal, balanced approach to the design (Fig F-8-D).

Locate major buildings as focal points and provide a framed view from the walks and drives approaching the building complex. Steps in combination with architecture have a strong directional movement and help establish an entrance sequence leading to buildings of major importance, while also allowing the building to work well with the natural sloping grades. Lighting and hand-railings should be incorporated with the step design.

### Parking Lot Arrangement

Parking lots should be separated from buildings by a 20' minimum pedestrian way/green space (Fig F-8-E).

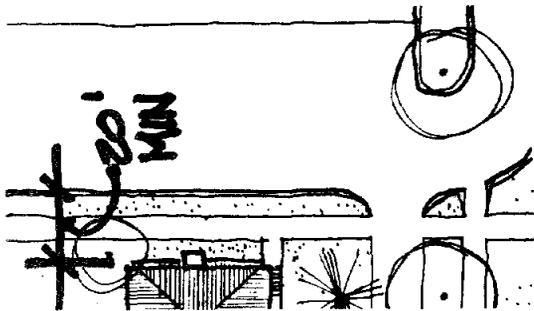


Fig F-8-E

Parking should be arranged for safe efficient travel from vehicles to buildings; The lot design should emphasize building entries by the align-

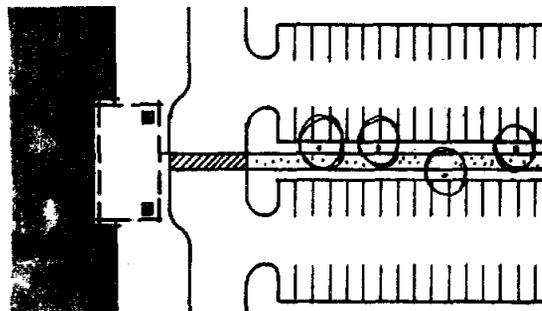


Fig F-8-F

ment of a landscaped median with each main entry (Fig F-8-F).

Figure F-8-G shows a desirable relationship between landscaping and parking; i.e., trees in islands, landscaping between parking and important pedestrian paths, and low shrubs marking intersection of pedestrian walk and parking lot drive (Fig F-8-G).

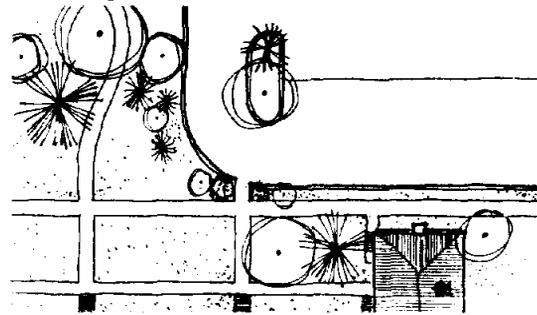


Fig F-8-G

Vehicular, bicycle and pedestrian traffic, especially in areas of high intensity use such as the Community Center and along arterial streets, should be separated to the greatest practical degree (Fig F-8-H).

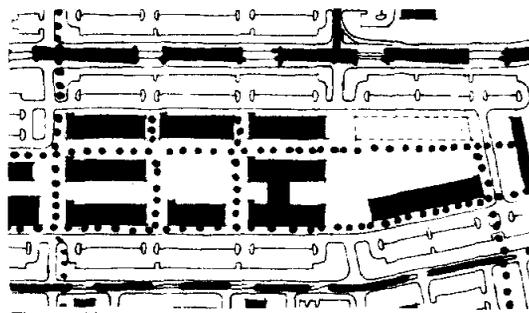


Fig F-8-H

This segregation can be accomplished with physical separations such as distance, elevation changes, berms and walls; or implied separations such as paint striping, plantings and so on; or a combination of these.

Locate loading docks out of view of building entries, customer or visitor parking, and major roads. If necessary provide screens such as landscaping, walls or fences in conjunction with landscaping (Fig F-8-I).

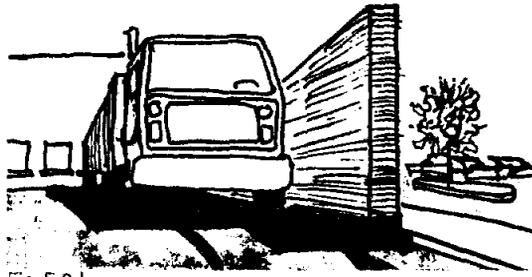


Fig F-8-1

## Walking Distance Between Building Groupings

A distance of 1900 FT maximum is recommended between major building groupings such as barracks and administrative structures, based on direction from Design Guide 1110-3-106. These standards are based on a walking speed of 480FT/2 MIN and an allowable walking time of 8 MIN. These numbers can also be compared to an average walking speed for 1 mile of 5280 FT/20 MIN (or 264 FT/MIN). On this basis, at 8 MIN walking time, a distance of 2100 FT can be comfortably travelled.

## SECTION B LANDSCAPE DESIGN

### General Principles

The Landscape Design Analysis written by the US Army Corps of Engineers, Seattle District, for Fort Lewis, Washington has established a policy for post-wide landscape design. A basic recommendation states that the natural beauty and existing landscape be preserved as much as possible. Guidance is given for street tree plantings, screen plantings, and beautification plantings. Instruction is given regarding designing landscaping for privacy, ultimate effect and adjacent land use. Specific problem areas have planting solutions graphically shown.

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The Fort Lewis Design Theme Study has clearly indicated a preference for maintaining an historical approach to the character of the landscaping, especially in the Garrison area. To this end, views of Mt Rainier are to be emphasized by creating a frame for the view with large groups of mature trees. Although a minimum level of maintenance is desirable post-wide, areas of greatest visual importance require the highest level of maintenance, whereas areas of lesser visual impact can be handled by using low maintenance native stock.

## Planting Design

Since landscaping is so vitally important to upgrading the visual appearance of the installation, planting designs must be carefully thought out concurrently with the design of each building complex. Permanent buildings of nondescript appearance can be screened by judiciously placed vegetation, and attractive landscaping can unify disparate buildings. This additional landscaping is urgently needed.

Major roads will be boldly planted with street trees. Typically, this would include a row on both sides and one row down the median strip. The character of 41st Division Drive and Jackson/Nevada Avenue, (the primary North-South and East-West arterials), should be that of a parkway, with a wide landscaped median stripe between opposing lanes of traffic. Transitional-sized planting should be used when existing forests are disturbed with new road cuts in order to blend the edges of the planted area with the tall, bare tree trunks.

As the majority of days are overcast or rainy, special attention should be given to a choice of the variegated foliage color, flowering characteristics, berries and fall foliage color change in order to brighten and provide color to the environment.

## Planting Materials

Use a variety of sizes, shapes, textures and colors of acclimatized plant material to give different areas their own personality while main-

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taining continuity. It is recommended that each Zone at Fort Lewis have distinct plantings in conjunction with the area signs to make them readily identifiable. Choice of plant material should be in accordance with the Landscape Design Analysis prepared by the Seattle District COE and based on appearance, availability, hardiness, growth rate, low maintenance and long life. Continue the historic approach of substantial, appropriate, large scale plantings of trees to lend an air of permanence, maturity and continuity to Fort Lewis.

## Irrigation

Permanent automatic sprinkler systems are necessary for formal areas such as the Parade Ground and in front of I Corps Headquarters in order to maintain the high quality appearance desired there.

Temporary irrigation will also be necessary as a means of getting the newly planted stock to grow. Drought resistant species of grass are also recommended. See Landscape Guideline 7, pages 8-27 and 8-28 for further information.

## Soil/Mulch

To minimize irrigation requirements, provide bark or wood chip mulch covering in planted areas (2" min). Ensure that the soil used in the planting hole has proper moisture-holding capabilities. It is important to use topsoil and planting soil mixes which will hold moisture due to the gravelly soils that are prevalent at Fort Lewis.

## Landscaping Forms

The seven basic landscaping forms to be used are; trees, hedges, shrubs, turf lawns, ground covers, flower borders and vines. In the interest of keeping maintenance costs at a minimum, as much hardy native plant material as possible should be used.

## Trees

Since the natural tree coverage of Fort Lewis is primarily evergreen trees, it is appropriate that evergreens be used as a basic staple and deciduous trees be used for ceremonial areas and for decorative purposes (Fig F-8-J).

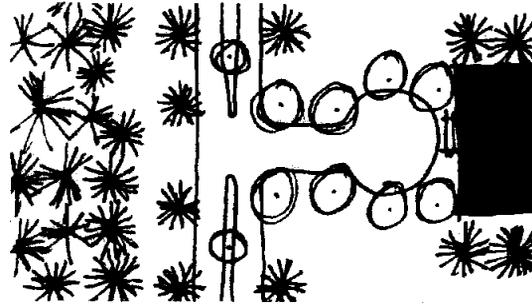


Fig F-8-J

The practice of locating unique specimen trees, such as Horsechestnuts, in relation to Headquarters/Administration buildings should be continued.

Evergreens should be widely used as they extend the character of the natural environment, and deciduous trees should be utilized for visual contrast and fall foliage. However, care must be taken not to plant evergreens where they will cause a litter problem. Since Douglas fir may present some litter problems, it is best not to plant them adjacent to formal lawn areas, thus reducing maintenance costs.

Trees should be placed a sufficient distance from buildings and walks so as to allow for their root structure and size at maturity.

Trees provide the strongest architectural lines and add the sense of three dimensional scale by virtue of their height.

Young trees may require selective pruning to create the strongest specimen and to create a formal or natural appearance.

## Hedges

Use hedges to define spaces, thus raising green walls of privacy. For example, use hedges to separate formal lawn areas from children's play areas.

When planning hedges, sufficient space must be allowed to accommodate the full-grown species selected. Judiciously placed hedges can be used effectively to create outdoor privacy. Use shrubs along roadways to reduce auto pollutants and raise the quality of air (F-8-K).

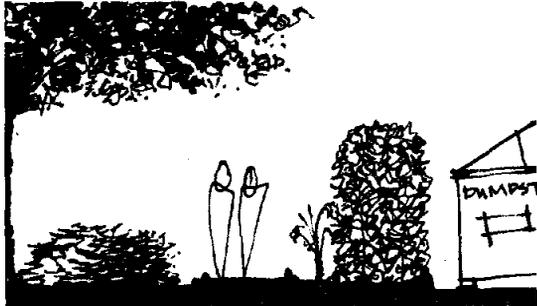


Fig F-8-K

## Shrubs

Use shrubs as transitions between ground cover and trees, and for windbreaks, low boundaries, screens and to guide the eye in a particular direction.

Shrubs are the greatest space fillers in the garden; they serve as background for flowers and counterpoint for trees.

Care must be given to the selection of an appropriate species for each location to ensure that sufficient space is allowed for mature shrubs planted adjacent to walks and buildings.

## Turf/Lawns

Use permanent irrigation systems for grass at formal and intensive use areas (Fig F-8-L). Use low maintenance, native wild flower meadow grass mixtures, ivy and other ground cover at all other areas. Choose locally success-

ful lawn seed mixtures which are appropriate to their purposes, such as show lawns, play lawns and lawns in shady areas.



Fig F-8-L

## Ground Covers

Ground covers are particularly useful in areas which require dense plant cover, yet comparatively low maintenance, such as parking islands. They may also be used under shade trees, for carpeting the ground beneath shrubs, and for covering banks. Often, slopes can be planted in self-sustaining ground covers which will then reduce maintenance time by eliminating the mowing of difficult slopes (Fig F-8-M).

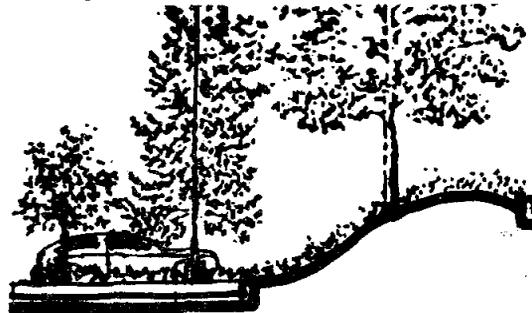


Fig F-8-M

A single, formal grounds planting would be appropriate in the Zone and Garrison areas, although this type of garden requires more intense labor.

## Flower Borders

The use of annual flowers, because of the additional maintenance involved, should be limited.

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In small areas, flowers add excitement due to their brilliant color; their use can emphasize seasonal changes as well. It would be appropriate to plant perennials wherever possible to lower maintenance costs.

The edges of planting beds should be clearly defined and readily maintainable.

Use perennials judiciously to add color and enhance overall planting schemes.; for example, use Phlox for low, spreading situations, Poppies to accentuate a sign's importance and Asters to for late summer color. Rock gardens may be created as an economical variation to general plantings where close-up detail is important. Use hardy perennials which, once started, can be maintained with minimum care. Choose a variety of plant material so as to add touches of color to the landscape at different seasons.

Attention should be given to the use of bulbs to provide color throughout the year, especially in the late winter and early springtime, as they do particularly well in the Fort Lewis climate and region. Once planted, they will maintain themselves for years with a minimum of care. They are effective when planted in clumps beneath trees and shrubs and in perennial borders and rock gardens. Most specialist bulb suppliers offer a variety of species including those that grow in the wild, hybrids and horticultural varieties. Crocuses and Narcissi look best planted in groups beneath trees, in rock gardens or among perennials. Daffodils may be planted in clumps for an informal effect or in masses for a show of color. Tulips are majestic and adapt well to formal schemes where an entire bed is devoted to them.

### Vines

Use vines primarily on trellises or arbors for special effects and summertime shading (Fig F-8-N), or on fencing or other support as screening. Vines on lattices can also be used to conceal and blend a building with the landscape, especially in the historic district. Although many of the older buildings in the Garrison Area do have ivy on their facades, the planting

of vines on new buildings is discouraged due to the maintenance problems which might be incurred. Also, it is best to not plant vines where they will interfere with window and door openings.

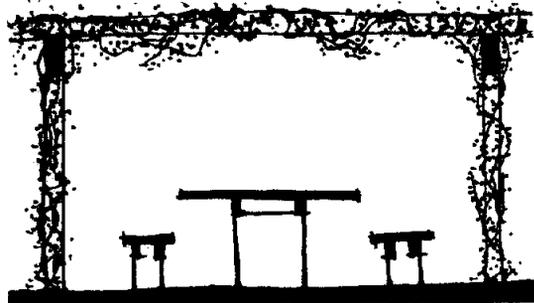


Fig F-8-N

Care must be taken when locating ground cover beds containing climbing plant material or vines to prevent plants from choking out other growth, such as trees, and interfering with utility and safety equipment.

### Plant Species Selection

An effort should be made to choose long lived varieties of plants and to make plantings be as permanent as possible.

### Considerations

When selecting plant material, characteristics concerning rate of growth, sun or shade tolerance, resistance to disease, shape, character and soil preference should be considered for each choice.

When selecting trees and shrubs, thought should be given to varieties of plant material which support wildlife. Many shrubs and trees (such as Red Currant trees) provide berries and seeds which encourage wildlife. Birds require protective cover; thicket-like plantings and dense evergreens attract them. A mixture of native grasses and wild flowers can be established in areas where formal lawns are not re-

also support wildlife need transition areas of low-growing shrubs at their perimeters.

## Planting Layout Considerations

### General

Uncomplicated planting bed layout simplifies mowing of adjacent lawn areas; broad and simple formations of shrubs enhance the visual appearance of landscaped areas along roadways.

Tall-growing plants should not be planted under windows. Plants with dense foliage should be used for screening purposes and planted buffers.

Screening of undesirable architectural, industrial or other elements is one of landscaping's most valuable and cost effective uses (Fig F-8-O). This screening should consist primarily of evergreen shrubs and trees.

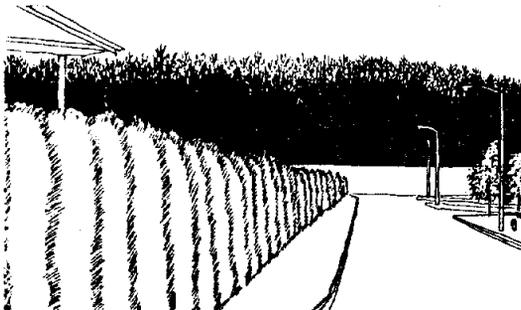


Fig F-8-O

Foundation planting are those which hide unsightly foundations and provide a transition from ground plane to wall plane (Fig F-8-P). Attention must be given to the species chosen for this purpose so that building light and natural ventilation are not impaired by mature shrubs growing above window sill level. Choice of plant material must contain variety



Fig F-8-P

to be visually interesting and to lessen the impact of disease which might be a problem if a single species were used alone (Fig F-8-Q).



Fig F-8-Q

### Tree Layout

Since trees tend to be long lived and have definite space requirements, care should be given to match the proposed tree's space requirements with the specific purpose it is intended to serve.

Consideration should be given to the mature size of each tree and shrub so that enough space is allowed at the time of initial planting.

Trees planted near buildings should be of the taproot variety of root system so as to avoid damage to foundations. Trees planted in proximity to buildings will aid in reducing the window glare. Deciduous trees should generally be placed where falling leaves and other litter do not need to be raked.

A staggered arrangement for planting street

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A staggered arrangement for planting street trees is recommended in order to provide greater visual interest and higher density.

### Character

The degree of formality in the arrangement of plant materials in an area can indicate its importance to the viewer.

#### Formal

Formal arrangement (uniform rhythm, symmetry in both plans and elevation, etc) emphasizes importance of surrounding buildings and military character (Fig F-8-R). In this situation, relatively high maintenance species are acceptable. These formal arrangements should be used only in very important locations.

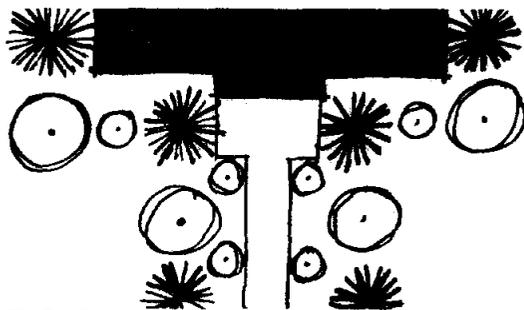


Fig F-8-R

#### Semi-Formal

Semi-formal arrangement is used in built-up areas in order to emphasize the importance of the area without incurring excessively high maintenance costs. Plantings are arranged in a somewhat symmetrical manner, but with much less emphasis on strict order and with many fewer plants requiring maintenance (Fig F-8-S).

#### Informal

An informal arrangement is to be used throughout Fort Lewis except at important locations as described above. Informal arrangements are generally asymmetrical with a varied rhythm and should be composed of species

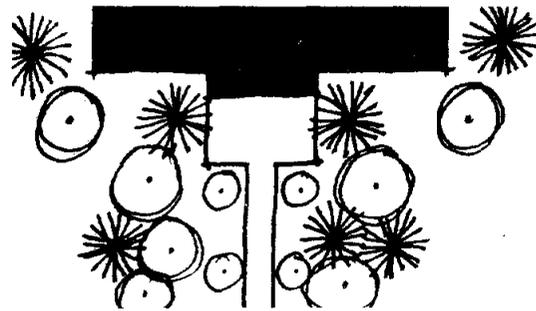


Fig F-8-S

which require little or no maintenance (Fig F-8-

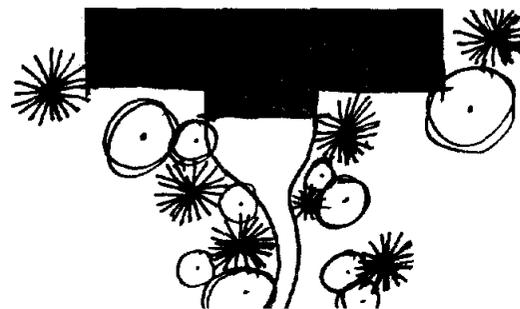


Fig F-8-T

T).

### Plant Textures

Coordinate plant textures to provide variety and emphasize other landscaping concepts. Create the broad background first, and use a variety of leaf pattern and leaf sheen, especially for areas which will be viewed at close range (Fig F-8-U).

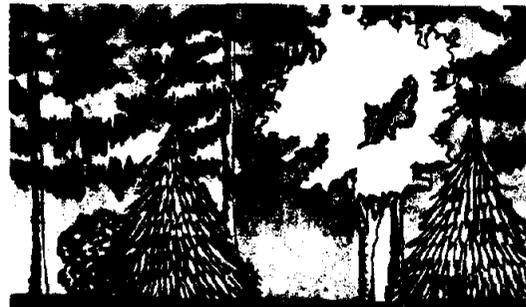


Fig F-8-U

masses of a single color of foliage are more effective than many different colors mixed together. Contrast may be achieved by using combinations of deciduous and evergreen trees.

A different type of texture can be achieved through the use of ferns. A variety of ferns are an ideal choice for open or partially shaded situations; allow enough space between plants to prevent fronds from intermingling.

### Functional Uses of Plant Material

This portion of the report explains how to effectively use plant material to solve functional problems.

### Circulation Control

#### Pedestrian Traffic

Dense, thorny growth discourages corner cutting at walk intersections, thus eliminating erosion and the soiling of walks and building entry spaces (Fig F-8-V).

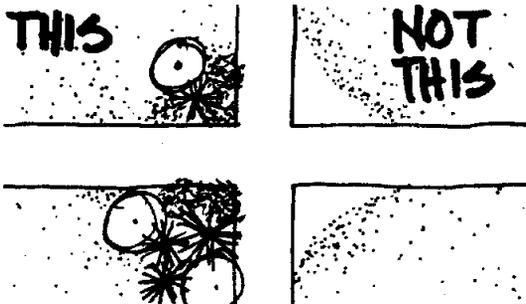


Fig F-8-V

#### Entry Planting

Plantings which draw attention to a building's entrance by their height, width, texture, color or shape help eliminate confusion in finding the entry and reinforce a building's importance (Fig F-8-W).



Fig F-8-W

#### Walk Maintenance

Where tree roots have caused existing portions of walks to buckle, remove broken portions of walk and replace with a new walk located at a greater distance from the tree (Fig F-8-X). An alternative (in non-formal areas) is to replace the damaged sidewalk with concrete pavers set level in a bed of sand.

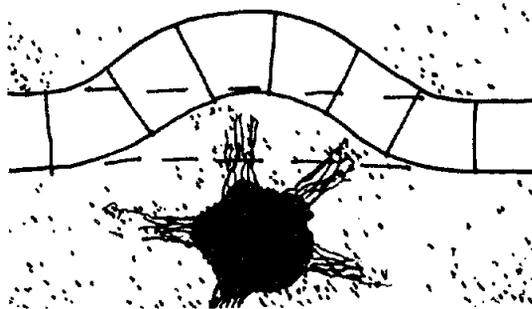


Fig F-8-X

#### View Controls

To create a sense of visual focus, a tunnel or alley effect may be created by planting rows of Russian Olive, Quaking Aspen or Pacific Dogwood trees. For areas of importance, a specimen tree such as Holly or Horse Chestnut, or a mass planting of Rhododendron or Azaleas can be used to frame the view or focus attention.

#### Environmental Controls

Landscaping, properly used, can assist in

## Environmental Controls

Landscaping, properly used, can assist in modifying the adverse effects of the environment.

### Wind Control

Dense evergreen or coniferous trees are useful for creating shelter belts against the wind.

### Temperature Modification

Deciduous trees which provide shade will enhance the appearance of the Post and can also be used to reduce building cooling needs during the summer months.

Rows of evergreens shall be used to break the winter winds, and deciduous vines shall be used on trellises for summer sun protection.

### Noise

Areas subjected to high noise levels will enjoy reductions of unpleasant sounds when dense foliage is used to absorb and deaden the noise.

### Glare Reflection

Heavily traveled roads require buffers of planting between them and inhabited areas in order to block out the lights of oncoming traffic.

## Implementation of Landscaping Plans

In the early stages of this landscaping program, it is especially important to design the planting materials in broad strokes to establish the basic plant material structure; later, specimen trees should be added to provide interest and detail in concentrated areas.

Consideration should be given to establishing a

nursery in an outdoor area where trees, shrubs, turf and flowers are produced and/or held for transplanting.

It would also be beneficial to the installation to establish volunteer tree planting programs. Some suggestions in that area might be for each soldier to volunteer to adopt a tree and plant it, to involve local Girl and Boy Scouts and to request assistance from volunteer women's groups at the Installation.

## Landscape Design Guidelines

This portion of the report contains seven landscape guidelines. Written to provide specific, detailed landscape design information, they are as follows:

- Guideline 1: Landscape Setbacks
- Guideline 2: Landscape Buffers
- Guideline 3: Parking Lot Screening
- Guideline 4: Parking Lot Trees
- Guideline 5: "Internal" Landscaping
- Guideline 6: Living Ground Cover
- Guideline 7: Irrigation

### Guideline 1: Landscape Setbacks

#### Purpose:

To provide a strong continuity and enhancement along the installation's rights-of-way, with an emphasis on trees (Fig F-8-Y).

#### Design Guideline:

Provide minimum landscaped setbacks in all areas and land use zones in accordance with the following standards.

##### a. Minimum depth of landscaped setbacks:

- Adjacent to primary roads, expressways or freeways: 35'
- Adjacent to secondary roads or minor arterials: 30'

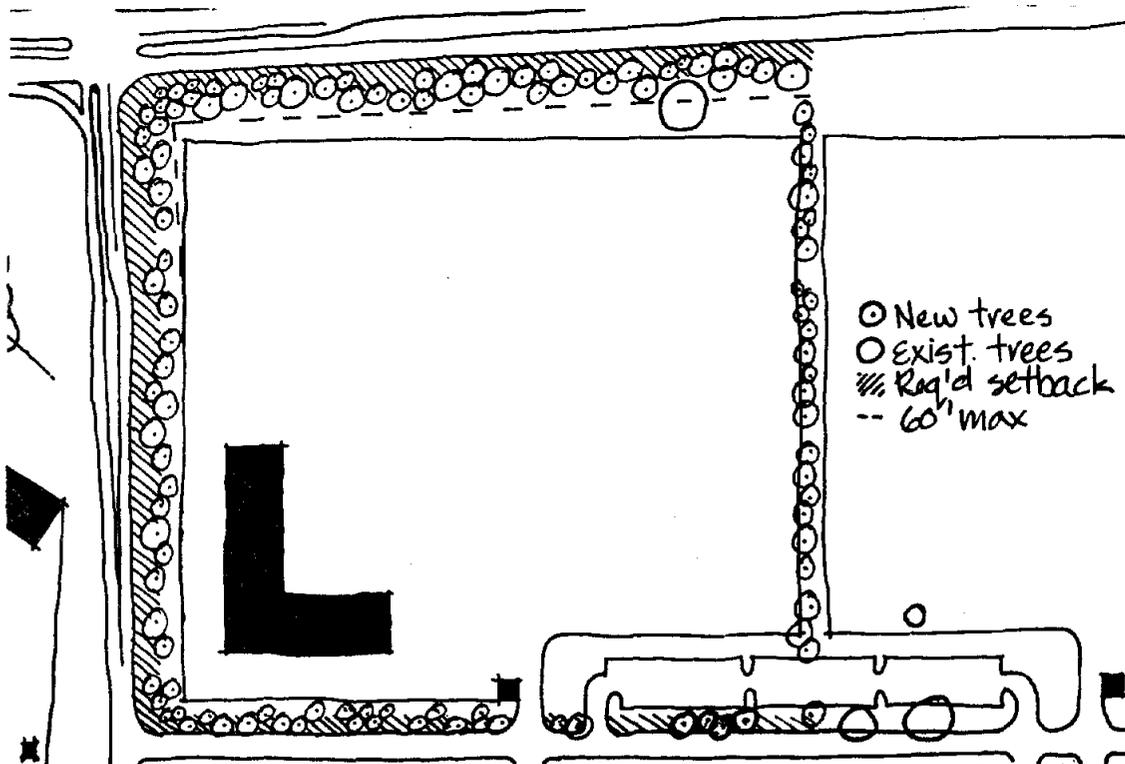


Fig F-8-Y

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- Adjacent to any tertiary road or street: 20'
- Adjacent to a non-street boundary of a land use zone district: No minimum depth requirement; however, provision must be made for required "non-street boundary" trees discussed in this guideline. Also, additional buffer areas may be required by Landscape Guideline 2.

**b. Minimum number of trees required in landscaped setbacks:**

- Adjacent to a major arterial, primary roads, expressway, or freeways: a minimum of one (1) tree for every twenty feet (20') of frontage of the project or area within the zone.
- Adjacent to a secondary road or minor arterial: a minimum of one (1) tree for every twenty-five feet (25') of frontage of the project or area with the zone.
- Adjacent to any tertiary street: a minimum of one (1) tree for every thirty feet (30') of frontage of the project or area within the zone district.
- Adjacent to any non-street (interior) boundary: a minimum of one (1) tree for every thirty feet (30') of non-street (interior) boundary of the project or area. These trees do not need to be located in a landscaped setback of a minimum size but shall be in planters of sufficient size and design to accommodate the growth of the trees and to prevent damage to the trees by vehicles.

These required landscaped setback and boundary trees may be clustered along a particular frontage or boundary. The trees shall be selected from tree types that are commonly known to grow in the Ft. Lewis area and are listed in the Landscape Design Analysis.

The required landscaped setback trees may be located in a landscaped setback with a depth greater than the minimum required depth;

however, in any case the required trees shall be located within sixty feet (60') of the street curb line. The required boundary trees shall be located within fifty feet (50') of the non-street (interior) boundary.

Walls and fences which are twenty-five percent (25%) or more opaque in design shall be no higher than three feet (3') above finish grade in a required landscaped setback. Opaque walls and fences higher than three feet (3') (such as noise barriers) must be located outside of the landscaped setback to maintain a landscaped appearance along the street.

**Implementation Policies:**

**a. Flexibility:**

- The need for flexibility is recognized in the development of some relatively small sites. On a site with a net size (excluding adjacent streets) of less than one (1) acre, the landscaped setback may be approved at less than required depth up to one-half (1/2) of the street frontage if the average depth of the landscaped setback complies with the required depth. This type of relief may allow for a desirable pedestrian-oriented space in lieu of a relatively short and narrow landscaped strip on a relatively small lot where site planning options are significantly limited.

**b. Retaining Walls:**

- Relief may be granted for retaining walls higher than three feet (3') in a required landscaped setback where special grading conditions exist. Such retaining walls shall be visually softened by plantings of trees and shrubs.

**c. Sidewalks:**

- Sidewalks may be permitted to "meander" into a required landscaped setback area if landscaping is provided and maintained to adequately compensate for the loss of landscaping in the setback area.

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d. Parking Areas and Driveways:

- Parking areas shall not be located in the setback areas except in single or double unit detached family housing areas. Driveways may cross the required setbacks to provide access for off-street parking areas.

e. Measurements:

- Landscape setback minimum depths shall be measured perpendicular to the street from the edge of existing pavement (or that proposed on current master plan if greater).

Other purposes of this guideline are to increase the visual awareness of zone edges and neighborhood areas and to emphasize the distinct functional zones of Ft. Lewis (Fig F-8-Z).

Design Guideline:

- a. Buffer between non-residential and residential projects or areas separated by a secondary or tertiary street.

- Where required - Such a buffer is required along the street side frontage in any zone district where such a project or area is separated from a residential project or area by a secondary or tertiary street. For the purposes of this guideline, residential uses shall include family housing, officer housing and troop housing. Secondary and tertiary streets are those designated as such in the current master plan documents.

- Design Standard - Such a buffer shall be

Guideline 2: Landscape Buffers

Purpose:

To screen and buffer higher intensity and/or objectionable land uses from lower-intensity uses.

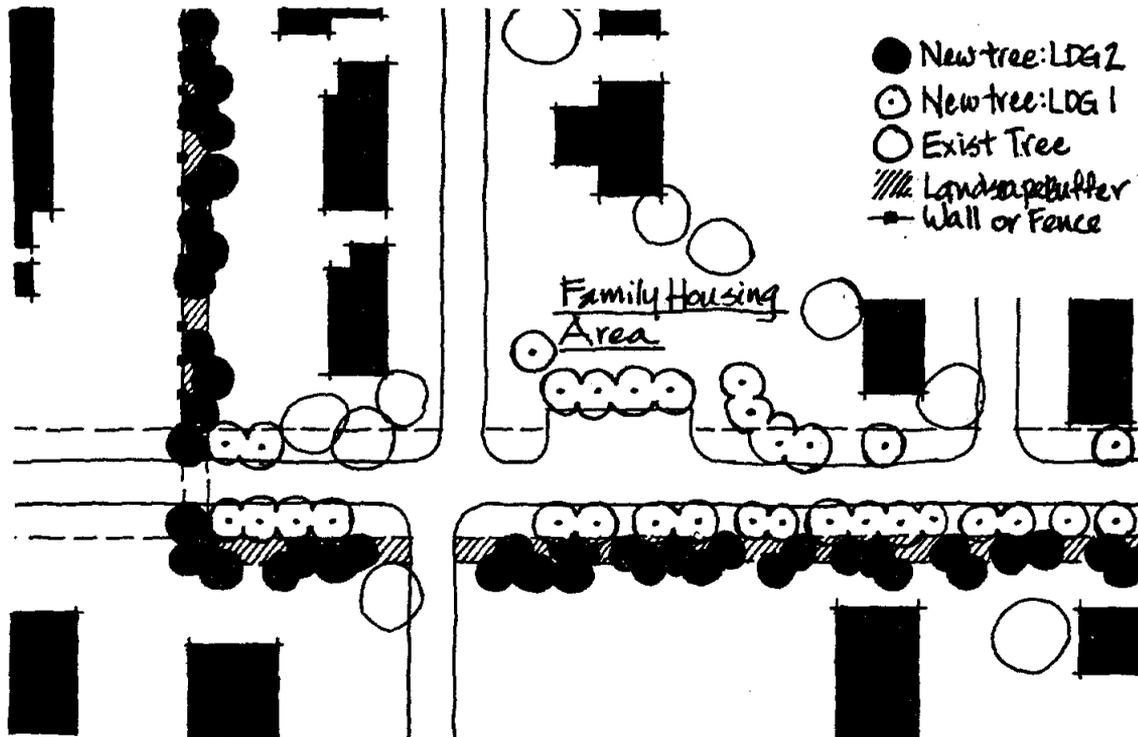


Fig F-8-Z

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a minimum of fifteen feet (15') in depth. The minimum required number of trees in such a buffer shall be one (1) tree for every twenty feet (20') of the frontage length of the buffer. A minimum of one-half (1/2) of the required trees shall be evergreens. The requirements of this section will increase the depth and number of trees of the "minimum landscape setback" in Landscape Design Guideline. This buffer area shall also require a ground covering with a minimum of seventy five percent (75%) in living plant materials.

**b. Buffer between non-residential and residential projects or areas that are directly adjacent and sharing a boundary or border line.**

•Where Required - Along the common boundary line in any non-residential project in any zone where it is directly adjacent to any residential project or area.

•Design Standards - This buffer shall comply with all requirements previously established for landscape buffers with these exceptions:

» Such a buffer shall also include an opaque structure with a minimum height of six feet (6') along the common boundary line.

» This type of buffer does not require a minimum percentage of ground covering by living materials. However, that portion of the buffer area in non-living ground cover materials shall consist of bark, wood chips, rock, stone or similar materials.

**Implementation Policies:**

**a. Tree Materials:**

•The tree materials used in the buffer shall be selected from the types which are commonly known to grow in the Ft. Lewis area and are listed in the Landscape Design Analysis. A concentration of small ornamental trees with

open branching and foliage and relatively slow growth is discouraged.

**b. Interface of Adjacent Uses:**

•It is recognized that the actual uses of land may vary greatly along a required buffer. Service docks, fronts of commercial buildings, parking areas or landscaped areas may face housing entries, private patios, parking areas or landscaped areas of a residential project. A variance of the minimum standards of the buffer may be approved to reflect the varying interface of the adjacent uses. For example, the required opaque structure may not be required between two landscaped spaces if plant materials are correspondingly increased.

**Guideline 3: Parking Lot Screening**

**Purpose:**

To screen parked cars from view from rights-of-way and adjacent uses.

**Design Guideline:**

When possible, existing tree groupings shall be retained in parking areas. Trees planted around the perimeter of the parking area are useful in screening the view of parked cars from upper building levels. Open parking spaces, except in one-family and two-family residential projects, shall be screened from view from adjacent projects, complexes and streets to an eventual minimum height of three (3') feet by the use of berms and/or plantings (Fig F-8-a). A minimum of two-thirds (2/3) of the affected street frontage on project or complex boundary not counting intersecting drive ways must have the required screen.

**a. With prior approval from DEH, decorative walls or fences may be used as an alternative method of screening if:**

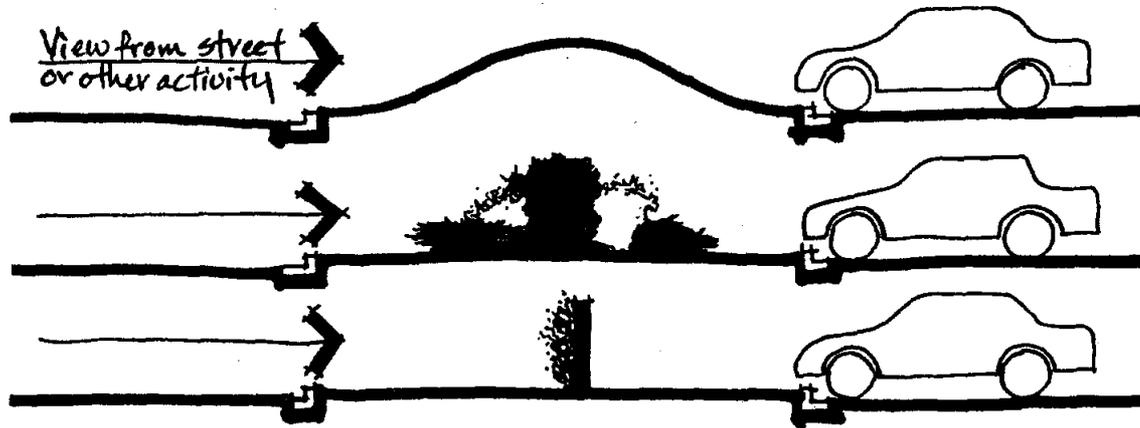


Fig F-8-a

- The structures avoid a blank and monotonous appearance by such means as architectural articulation and/or the planting of vines, shrubs or trees, and
- The total use of berms and/or plantings is not physically feasible, and
- The structures attractively complement the use of berms and/or plantings.

- » Sodded berms: 3:1 (3 feet horizontal: 1 foot vertical).
- » Planting beds: 2:1

- These standards may be applied to other planting areas, as well.

**Implementation Policies:**

**a. Parking Lot:**

- The shrubs used as parking lot screening shall substantially conform to the types, sizes and spacings provided in the Landscape Design Analysis.

**b. Reference Elevation:**

- In general, the reference elevation for the base of the required screen shall be the surface of the parking area that is to be screened.

**c. Grades:**

- The following maximum acceptable grades for screening parking lots shall be:

**Guideline 4: Parking Lot Trees**

**Purpose:**

To eliminate the visual harshness within parking areas, to provide a minimum quantity of plant materials within developed areas and to prevent parked automobiles from dominating the visual environment of adjacent activities.

**Design Guideline:**

Provide a minimum of one (1) tree, of a type suitable for parking lots, for every fifteen (15) open air vehicular parking spaces in parking lots with fifteen (15) or more stalls. The tree types and minimum planter sizes shall be consistent with the details and tables contained in the Landscape Design Analysis. The required trees may be clustered but shall be located to divide and break up expanses of paving and long rows of parking stalls and to create a canopy effect in parking lots. Trees must be lo-

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canopy effect in parking lots. Trees must be located in planters that are bounded on at least three sides by parking lot paving to be considered within the "parking lot".

This means that only trees within landscaped "islands" or "fingers" can be counted toward the parking lot tree requirement (Fig F-8-b). Tree planters shall be of sufficient size and design to accommodate the eventual maximum growth of the trees and to prevent damage to the trees by maneuvering vehicles (Fig F-8-c).

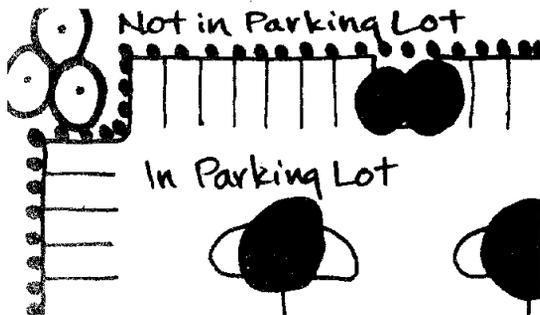


Fig F-8-b

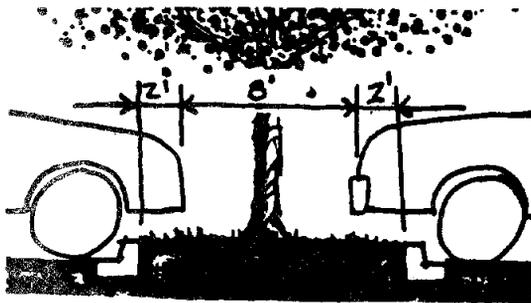


Fig F-8-c

**Implementation Policies:**

**a. Minimum Tree Size:**

- Minimum tree size, at the time of installation, shall be as indicated in the Landscape Design Analysis.

**b. Tree Types:**

- The tree types used as the required parking lot trees shall conform to the types in-

dicated in the Landscape Design Analysis. It is recognized that trees in addition to those discussed may be approved for use in parking lots if special conditions exist. For example:

- » a) A relatively small proportion of deciduous ornamental trees may be approved if a ratio of trees to parking spaces is greater than the minimum provided.
- » b) Coniferous evergreen trees may be approved if such trees are planted in areas exceeding the minimum planter sizes and if vehicular visibility is not a problem.

**c. Tree Location:**

- The required parking lot trees shall be located within the "parking lot area" which is essentially where vehicles park and maneuver and excludes other landscaping areas (Fig F-8-d).

**d. Beneficial Impact:**

- It is understood that parking lot trees have the greatest beneficial impact in relatively large parking lots, such as those in the Community Center area. Relatively small parking lots (a maximum of thirty (30) parking stalls with one aisle) may not significantly benefit from trees within the parking lot area. Relief from this guideline may be obtained in special small lot cases; however, the required trees shall be placed adjacent to the parking lot area, in conjunction with other required plant materials and trees, to provide visual relief and shading.

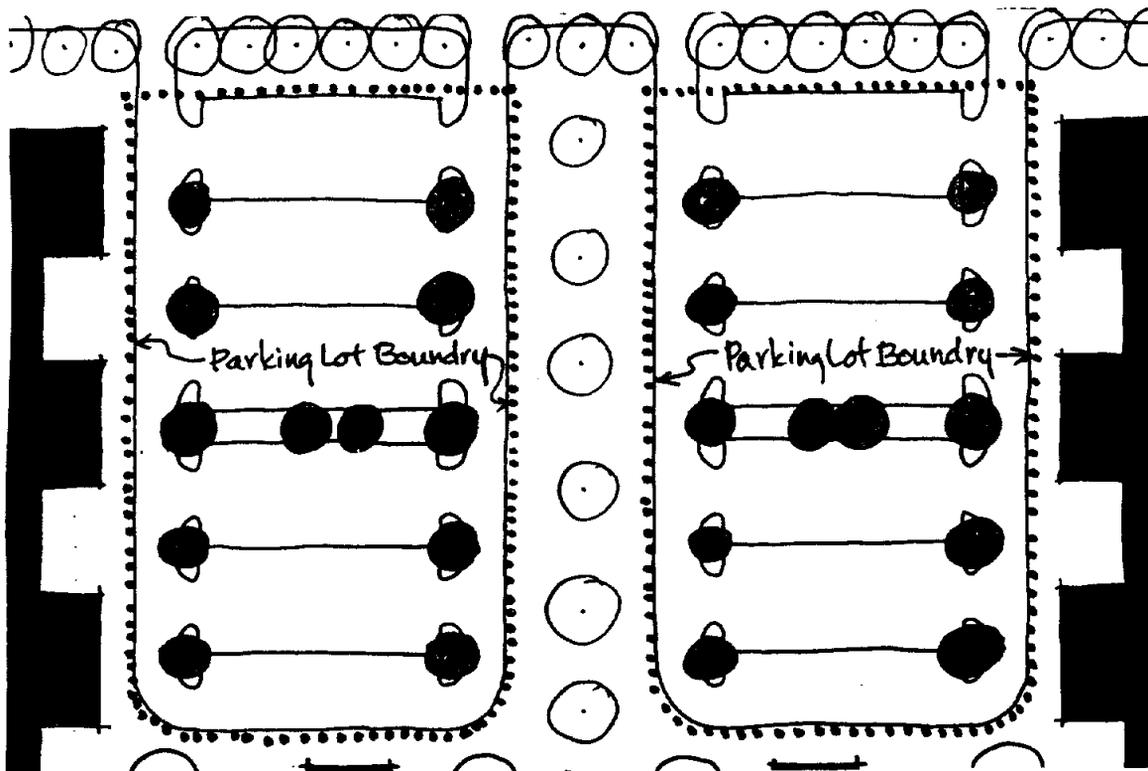


Fig F-8-d

## Guideline 5: "Internal" Landscaping

### Purpose:

To augment the "boundary" landscaping requirements (such as landscaped setbacks and buffers) and parking lot landscaping requirements, to visually soften the mass of buildings and to visually separate building areas from parking areas (Fig F-8-e).

### Design Guidelines:

Flexibility in the design of landscaping is needed because of the diversity of building designs and the possible limitations on plant selections due to building foundation problems caused by the root growth of some trees.

### a. Requirements for single family/duplex occupancy housing in Zone V:

- Minimum internal landscaping area: Twenty percent (20%) of the site area (excluding adjacent public streets).
- Minimum number of trees in the internal landscaping area: One tree for every 350 square feet of the required minimum internal landscaping area.

### a. Requirements for multiple occupancy housing projects (a project with three or more dwelling units in one building) in Zone IV or V:

- Minimum internal landscaping area: Fifteen percent (15%) of the site area (excluding adjacent public streets).

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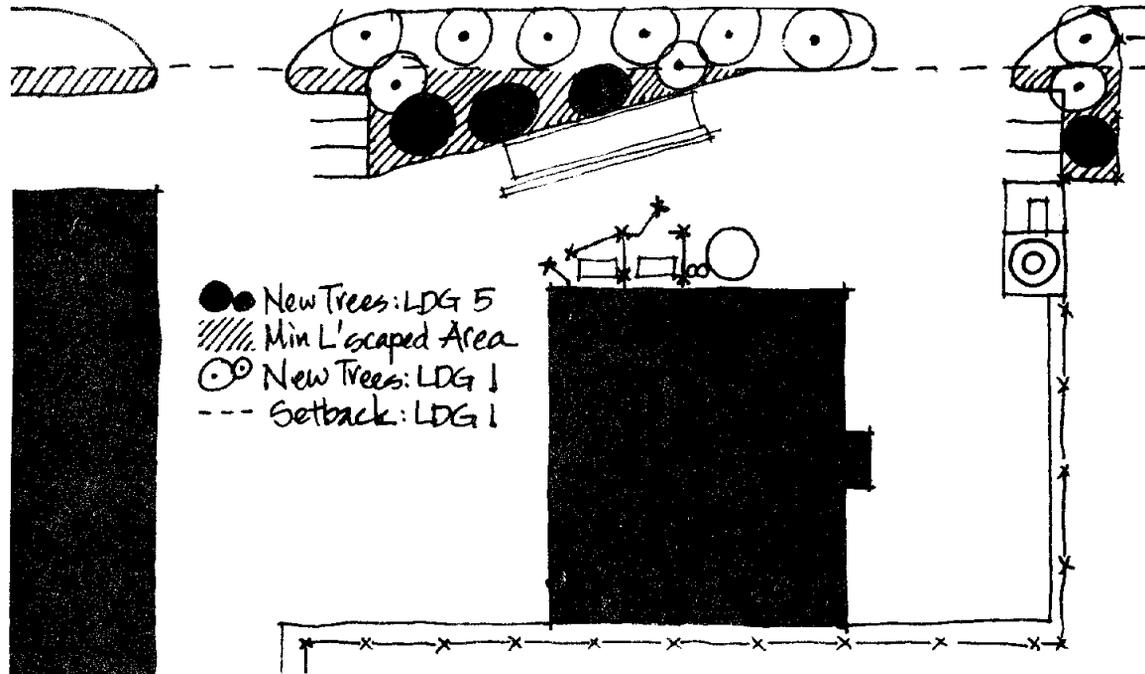


Fig F-8-e

- Minimum number of trees in the internal landscaping area: One (1) tree for every 500 square feet of the required minimum internal landscaping area.

**c. Requirements for non-residential projects in Zones I, VI and VII:**

- Minimum internal landscaping area to be Six percent (6%) of the site area (excluding adjacent public streets).
- Minimum number of trees in the internal landscaping area: One (1) tree for every 500 square feet of the required minimum internal landscaping area.
- Up to one half (1/2) of the required trees may be substituted by shrubs adjacent to retail storefronts in Zone IV where the view of wall signs may be obstructed. Ten (10) shrubs, each with a minimum container size of five (5) gallons, shall be provided for each tree that is replaced.

**d. Requirements for non-residential projects in Zones II and III:**

- Minimum internal landscaping area to be Three percent (3%) of the site area (excluding adjacent public streets).

- Minimum number of trees in the internal landscaping area: One (1) tree for every 500 square feet of the required minimum internal landscaping area.

**e. Standards for the minimum internal landscaping area and minimum number of trees:**

- Location of the minimum area to be credited toward the minimum internal landscaping area requirement, a landscaping area shall be located as follows:
  - » Adjacent to those building elevations which form the major public views of the project from adjacent streets and properties and to the users of the project, or
  - » Within a plaza or courtyard between buildings or portions of buildings, or

- » In a space provided to separate building areas from parking areas, or
  - » In a similar location which substantially conforms to the stated purpose of the required internal landscaping area (see above), if approved.
- The minimum internal landscaping area and its minimum number of trees may not consist of spaces or trees which are proposed to meet the minimum requirements of other sections of this Chapter--such as landscaped setbacks, buffers, or parking lot trees.
  - The minimum required internal landscaping area shall consist of a minimum of fifty percent (50%) in ground covering by living grass or other plant materials. This percentage provides flexibility where plants and their irrigation should be limited next to building foundations.
  - The intent of the internal landscaping area is to provide relief from structures and hard surfaces in a project through the use of plantings. Therefore, sidewalks which provide basic pedestrian circulation only shall not be credited toward the minimum internal landscaping area requirements. Paved plazas may be credited to a maximum of 50% of the required internal landscaping area if such plazas have trees which provide visual relief to those building elevations which form the major public views of the project.

To provide for flexibility of design in the minimum internal landscaping area, the designers may select the types of, and the planting spaces between, the required trees. However, the trees shall be selected from the tree types that are listed in the Landscape Design Analysis. The planting spacing should allow for the growth of the trees without adversely affecting the maintenance of structures, walks or drives.

## Guideline 6: Living Ground Cover

### Purpose:

To insure the presence of attractive, beneficial landscaping around all Ft. Lewis's facilities.

### Design Guideline:

Unless otherwise specified, any required landscape area--such as a "minimum landscaped setback"--shall consist of a minimum of seventy-five percent (75%) in ground covering by living grass or other plant materials. The minimum planting sizes and spacings of shrubs and ground covers to meet a ground covering requirement shall be consistent with the Landscape Design Analysis. The foliage crown of trees shall not be used in the seventy-five percent (75%) or other required percentage calculation. The remaining twenty-five percent (25%) of the required landscape area may be covered with bark, wood chips, rock, stone, or other similar materials as approved.

### Implementation Policies:

#### a. Living Materials:

- Planting of shrubs and ground covers to be considered "ground cover of living materials" shall substantially comply with the planting sizes and spacings shown in the Landscape Design Analysis.

#### b. Spacing:

- The spacing between two plants with different spacing requirements shall be an approximate average of the two spacing requirements.

#### c. Wildflowers:

- Wildflowers, where proposed to fulfill a ground covering requirement, should be combined with native grasses so as to approximate their natural growing conditions.

## Guideline 7: Irrigation

### Purpose:

Since the necessity, appropriateness and advantages of irrigation have been explained earlier in this report, the purpose of this section is to explain the type of equipment and methods to be used to irrigate the required landscape areas.

### Design Guideline:

Proposed types of irrigation should be similar to the following:

Type of Planting	Irrigation Requirement	Possible Solutions
Native grass/ wildflower seed	May germinate with normal precipitation if planted in early fall or early spring.	Insure sufficient moisture; use drought tolerant species.
Ground covers, shrubs, and trees native to the general Fort Lewis area.	May establish with normal precipitation but will most likely need temporary irrigation for one or two summers until established	1. Small accessible areas may be hand watered. 2. Drip irrigation system, plants gradually weaned off system. 3. Overhead temporary system.
Ground covers, shrubs, and trees native to the Puget Sound region.	Temporary or permanent irrigation system.	1. Drip irrigation system Plants gradually weaned off system. 2. Permanent irrigation system.
Ground covers, shrubs and trees not native to the Puget Sound region.	Spring through Fall	1. Drip irrigation system. 2. Permanent irrigation system.
Sod	Spring through Fall	Permanent irrigation system

## SECTION C

### SITE AMENITIES

#### General Principles

This section on site amenities includes Lighting, Site Accessories/Symbolic, Site Accessories/Utilitarian and Furnishings. Continuity of design is important in each of these areas to present a unified designed image for the entire installation. While none of these items is of major design importance by itself, the summation of the imposition of all these seemingly unrelated items on the natural landscape either creates an image of visual clutter or furnishes a sense of orderliness and permanence. When these items are successfully handled, they blend into the visual scene and do not call attention to themselves, yet, on closer inspection, are complete designs in themselves.

#### Lighting

In addition to the design direction provided by the Installation Design Manual, TM5-803-5, emphasis should be given to the important role of lighting because of its importance in creating a safe and navigable nighttime environment. A sense of visual hierarchy created by type, intensity and direction of light beam is vitally important to enable people to retain their sense of orientation. Proper levels of lighting greatly increase the level of security experienced by the pedestrian.

Light fixture height, type and spacing should make clear to the driver of a vehicle whether he is on a primary, secondary or tertiary road. Buildings of major importance should be bathed in a wash of light and appear to glow; significant monuments require night lighting for the needed dramatic effect. Consistent design approach will greatly improve the visual

appearance at Fort Lewis. Attention to the results of the placement of the light source and the angle of the light beam is also important. For example, the rough texture of stone masonry can be enhanced by proper lighting.

#### Light Fixture Location

Provide lighting appropriate to the use level and the importance of a given walkway, courtyard, etc (Fig F-8-f). In high use areas lighting should be pole mounted and should spread light evenly over the necessary area. Low-use areas on the other hand will probably only require bollard mounted lighting.

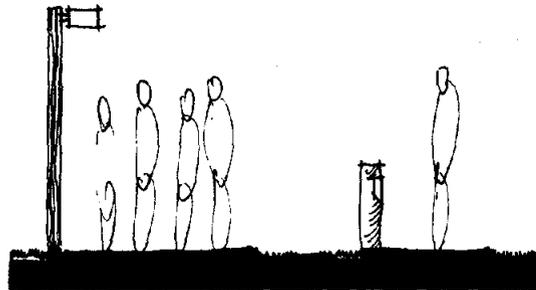


Fig F-8-f

#### Light Fixture Design

Lighting fixtures and supports should be designed so as to blend or harmonize with the predominant design theme of a given site. In the Garrison area, for example, lighting fixtures should be contemporary and rectilinear or very traditional, using dark bronze anodized aluminum or painted steel, not dated fixtures of raw anodized aluminum (Fig F-8-g).

#### Site Accessories/Symbolic

Symbolic site furnishings include flagpoles, military equipment displays, memorials and

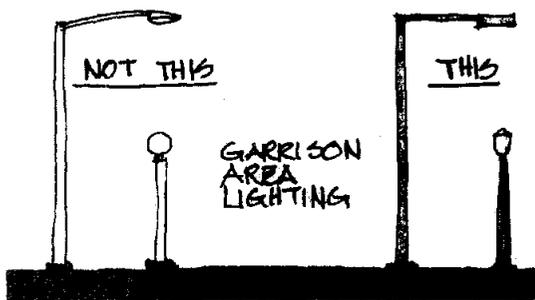


Fig F-8-g

items of historical influence. Since the desired image of Fort Lewis is the Military Park Theme, it is especially important that symbolic site furnishings are placed in an appropriate, frequent and consistent manner throughout the installation as one means of developing pride in the military. A sense of pride and importance for each display will be strengthened by establishing a formal character to each exhibit.

## Flagpoles

Locate flagpoles in very prominent locations near major facility entries (Fig F-8-h). The relationship between the flagpole location and the building facade, the orientation of walkways and the adjacent planting should all reinforce the importance of the Country's flag.



Fig F-8-h

While the standard practice of placing individual flagpoles in front of Headquarters Buildings is appropriate, a greater hierarchical military impact can be achieved through the use of groupings or regular spacing of flag-

poles, which would also be consistent with the Military Park Design Theme.

## Monuments/Memorials

Displays of military equipment related to the present mission of the installation and monuments which represent the brave or heroic actions of military personnel are all appropriate and should be encouraged.

Locate monuments and memorials in formal or semiformal landscaping in areas frequented by visitors and at important military locations (Fig F-8-i). The quality of paving materials and the arrangement and quality of the landscaping should draw attention to the monument or memorial.

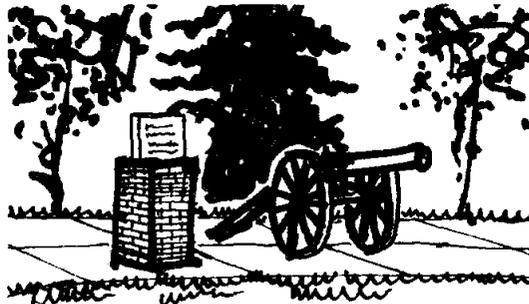


Fig F-8-i

In keeping with the theme of military dignity, a reflecting pool or a fountain could be used in conjunction with a monument location, although winter and safety precautions would need to be taken.

## Site Accessories/Utilitarian

Utilitarian furnishings include kiosks, bus shelters, benches, dumpsters, trash containers, bicycle racks, fences and gang mail boxes. It is important to relate the design of these individual items to the architectural character of the area in which they occur. They should blend into the setting, be of practical design for the climate and require little maintenance. Fences and berms and shrubs or plantings should

be employed to provide the screening, grouping and of containment for these site accessories. Seating walls around raised planting beds provide a unified design element to outdoor living spaces.

Locate seating, trash receptacles and drinking fountains in areas of high pedestrian use; i.e., major pedestrian walkways between buildings and near parking lots and bus stations (Fig F-8-j). The adjacent landscaping should shelter and compliment the furnishings.

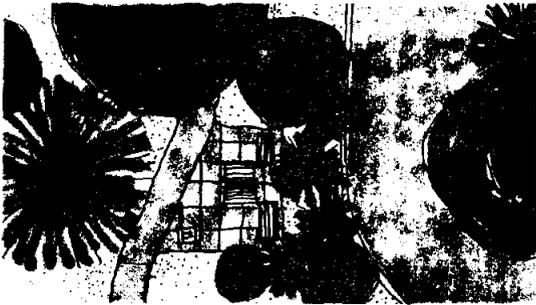


Fig F-8-j

### Kiosks and Bus Shelters

Design bus shelters, kiosks and gang mail boxes to reflect the predominate, surrounding architectural style and to reflect permanence. In the Garrison Area, for example, the materials used should be brick with clay roofing tiles or similarly handsome, permanent material (Fig F-8-k). Most family housing areas, by contrast, would require painted wood construction with shingle roofs.



Fig F-8-k

Trash receptacles should be inconspicuously

placed near outdoor seating groupings. A sense of enclosure can be attained through the use of landscaping, fences and berms.

### Dumpster Enclosures

Design dumpster enclosures and other screen walls and fences to be an integral part of an architectural theme or to be as inconspicuous as possible (Fig F-8-l). Some samples of appropriate designs are brick walls with metal gates, stucco over concrete block walls with chain link and redwood slat gates and simply a good quality wood fence with gates.

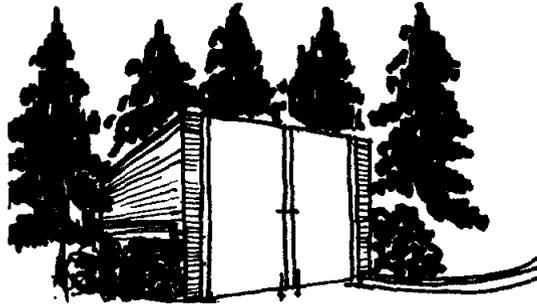


Fig F-8-l

### Bicycle Racks

Place bicycle racks near building entries yet out of the way of pedestrian circulation (Fig F-8-m). The bicycle parking areas should be easy to locate without being obtrusive.

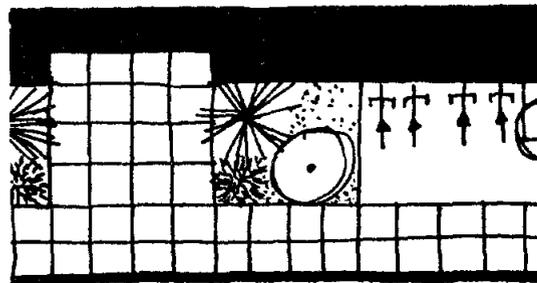


Fig F-8-m

## Plazas

Outdoor plaza designs should be included in all new projects in which significant numbers of personnel work, congregate or live. These outdoor seating areas should have south exposure, should be protected from winter winds, should be sized in relation to the number of users and should be enhanced with planters, sitting walls, textured paving and level changes.

## Benches

Coordinate the design of seating and other furnishings with the surrounding architectural style. Avoid dated styles consisting of plastic seats and tops and galvanized metal supports. (Fig F-8-n). Recommended materials for street furniture are precast concrete combined with naturally-finished wood.



Fig F-8-n

## SECTION D SIGNAGE

### General Principles

Sign design should be consistent, coordinated and uniform in character. Limits must be imposed as to the quantity of information provided by each sign. Legible type and visible locations will assist the user in making rapid decisions.

Because there is a constant flow of incoming personnel unfamiliar with Fort Lewis and the

Installation's considerable size, clear directional signage is especially important. Coordinate this sign design guidance with the engineering agency of Military Traffic Management Command. Existing signs should be replaced with new standardized signs in order of the importance of the Zone.

In addition to the signage information presented here, it will be appropriate for the Installation to do a comprehensive study in detail, based on these signage design guidelines.

In order to assure that all Installation signage communicates clearly in an efficient and systematic manner, it is strongly recommended that an overall sign plan be prepared. Its purpose would be to record the location, sign type and message content of each exterior sign.

## Sign Layout

Guidelines for arranging information on signs are as follows:

- Single idea or name on each line.
- Spell names out in full, whenever possible.
- Use numerical abbreviations for titles of military units.
- Use Roman numerals for corps.
- The use of military emblems in full color is encouraged, where appropriate.

## Construction Details

Typical sign construction details are shown in the following illustrations (Fig F-8-o; Fig F-8-p).

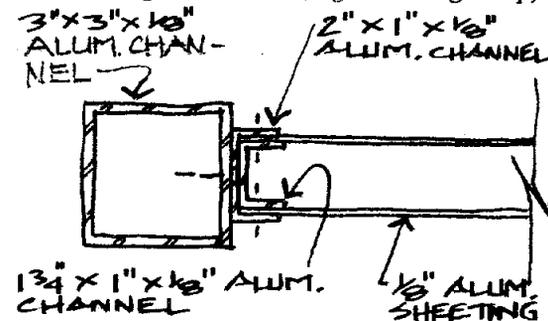


Fig F-8-o

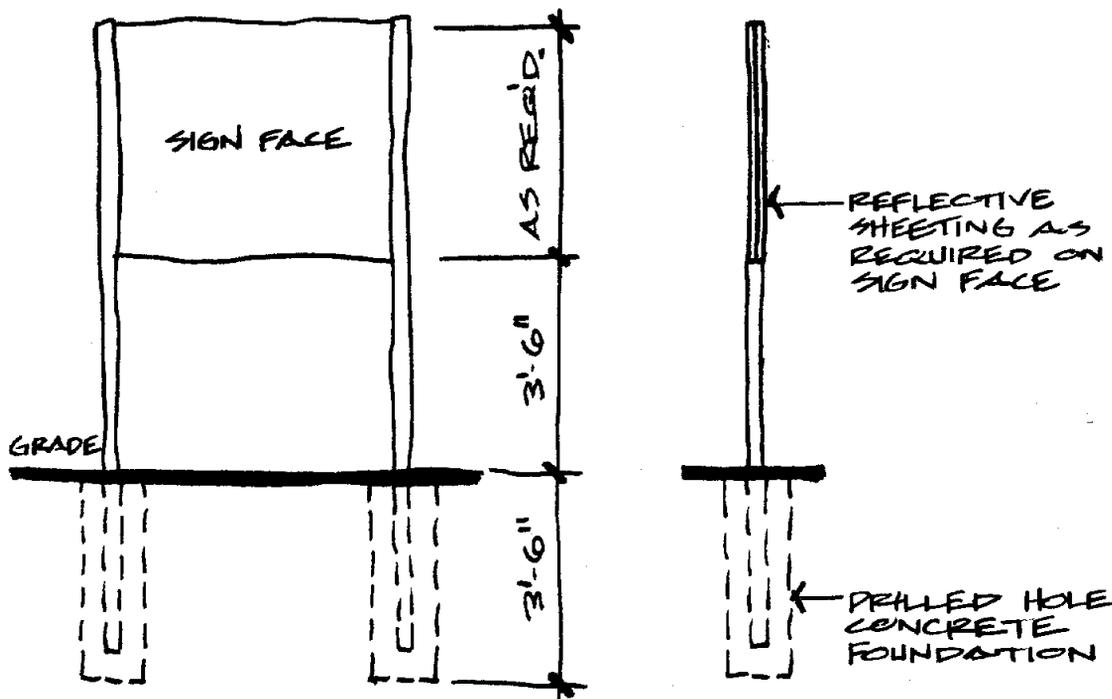


Fig F-8-p

## Typeface

All signs shall have standard white vinyl die cut characters as follows:

Two typefaces are to be used in the signage system (Fig F-8-g):

### Helvetica Medium

### Helvetica Regular



Fig F-8-q

- Helvetica Medium - all major information.

- Helvetica Regular - all secondary information.

All arrow and other symbols shall be Helvetica also.

## Illumination

All signs may be illuminated with screened or hidden non-glare light sources. Lighting should be restricted to the sign panel only, and should be evenly distributed.

## Sign Landscaping

Evergreens used behind signs make effective backdrops. Ground cover planted in front of the sign (to visually tie the sign to the ground) must not interfere with the visibility (Fig F-8-r).



Fig F-8-r

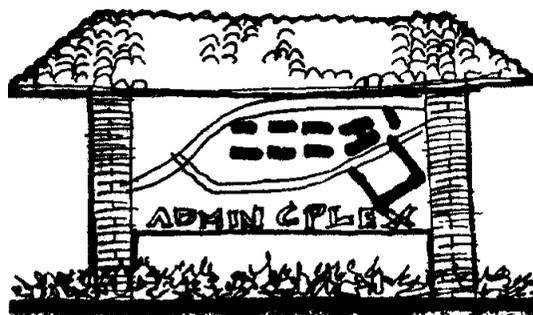


Fig F-8-t

## Types of Signage

### Directional Signage

Use a modular system constructed of dark bronze extruded aluminum. Limit listings to a maximum of five major destinations (Fig F-8-s).

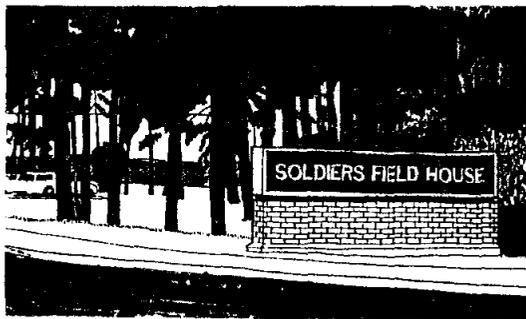


Fig F-8-s

### Complex/Neighborhood Identification Signage

Provide a separate automobile lane adjacent to a lighted sign with a simple map to act as a "gateway" to a building complex or housing neighborhood and eliminate the need for extensive signage within a complex (Fig F-8-t).

### Major Facility or Building Signage

Facilities such as Gray Army Airfield and I

Corps Headquarters should be identified by signs composed of a dark bronze sign box mounted on a masonry base (Fig F-8-u).

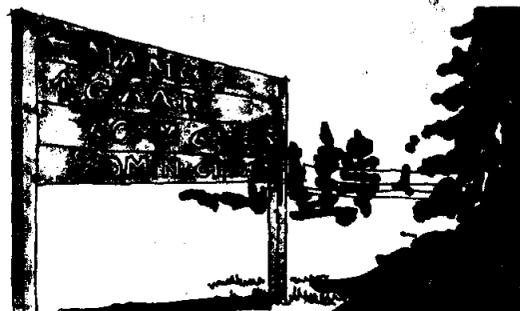


Fig F-8-u

### Minor Building Signage

Most buildings that need identification in addition to building number will be identified by dark bronze extruded aluminum signs consisting of a square proportioned sign face mounted to a double posts. The existing metal and wood "pennant" signs, if well maintained, are still appropriate to identify barracks and company supply and administration buildings (Fig F-8-v).

### Regulatory Signage

Standard regulatory symbols will be affixed, whenever possible, and especially within complexes such as Madigan Army Medical Center, to dark bronze aluminum sign aluminum sign posts consistent with the postwide system (Fig F-8-w).

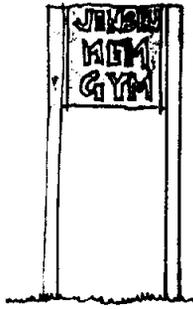


Fig F-8-v

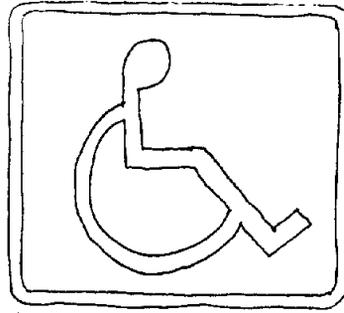
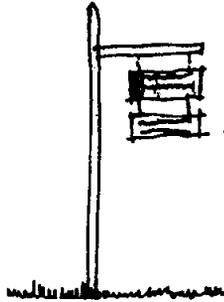


Fig F-8-y

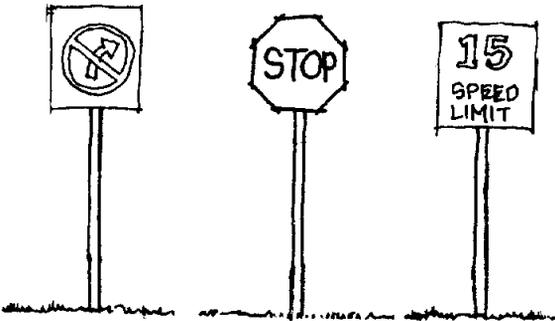


Fig F-8-w

## SECTION E COORDINATION

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Lighting, traffic signals, site furnishings and signage should be coordinated, especially within Zones, complexes and neighborhoods, to reduce clutter and provide cohesive, usable systems. As the current wide variety of styles in these areas is reduced to an easily perceived group of standards, a new visual harmony will prevail.

Far-reaching effects of this standardization will be cohesion within each Zone, as well as having a unifying effect on this entire large Post. By repeating the same design elements, a reduction in visual clutter will result.

### Building Identification Numbers

Buildings identification numbers should be placed to look like an address (Fig F-8-x).

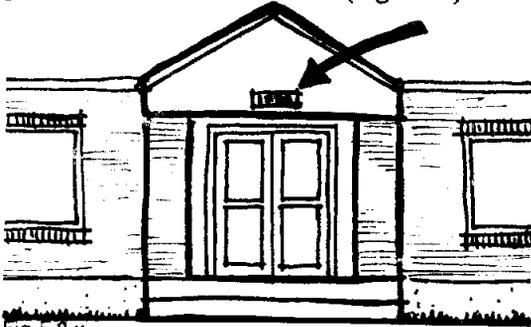


Fig F-8-x

### Signage for the Handicapped

Equip all facilities frequented by and accessible to handicapped users with appropriate signage (Fig F-8-y).

ZONE DISCUSSION  
CHAPTER 8-SITE DESIGN CRITERIA