

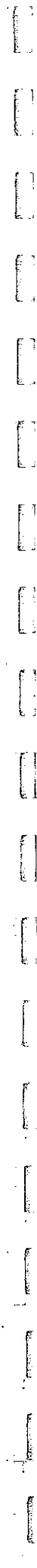
Design Guidelines



DEER VALLEY

PARK CITY, UTAH

THE UNIVERSITY OF CHICAGO



Prologue

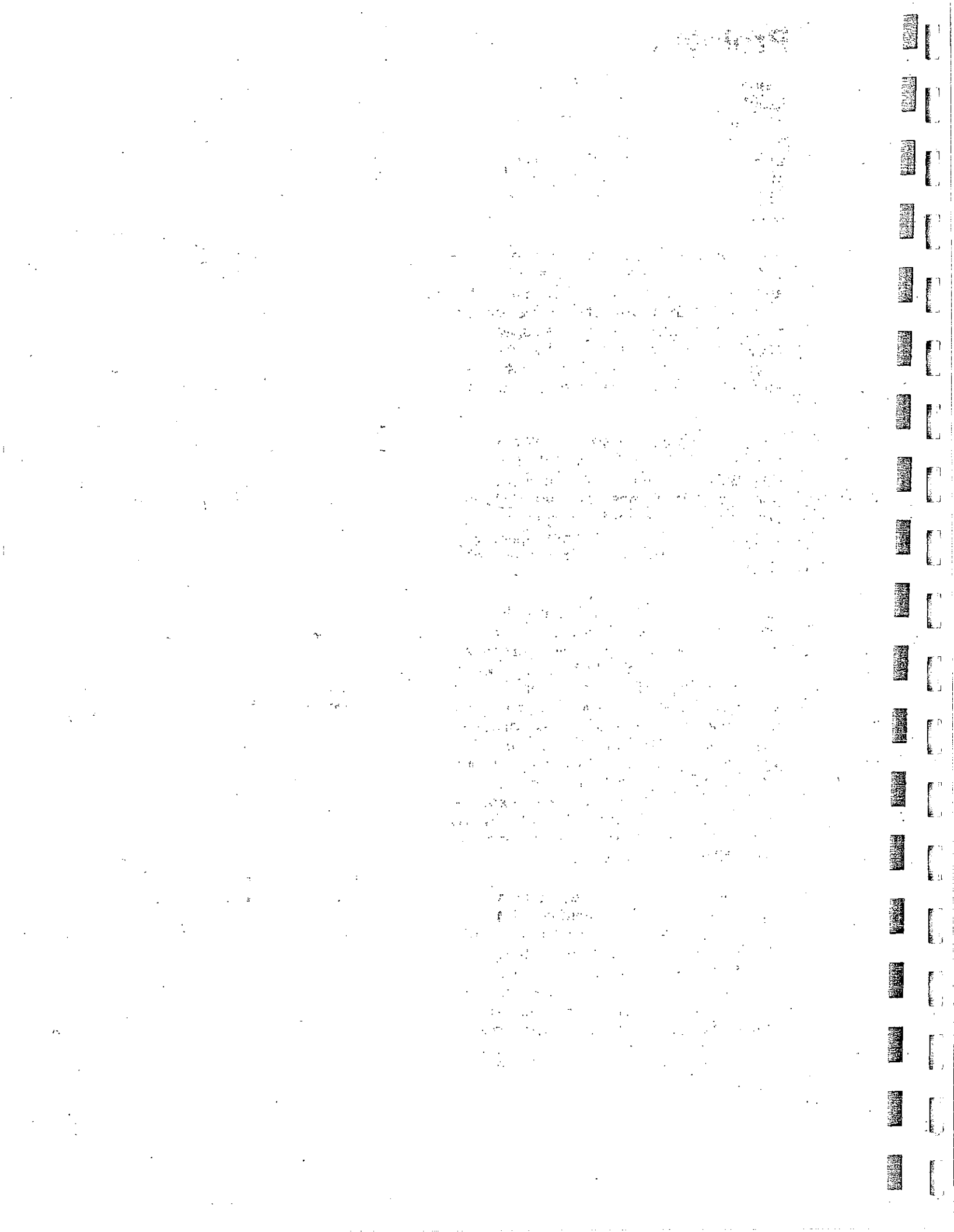
These guidelines are based on a simple premise: If everyone tries to get everyone else's attention, no one will get anyone's attention; if, on the other hand, the atmosphere is calmer and more pleasant, one has the leisure to notice everybody.

Deer Valley is an area of remarkable natural beauty. Its housing and facilities are intended to reinforce this quality. The basis for its attraction to prospective residents is this overall character. It is something that can easily be lost by unplanned development.

Each new development should reinforce and be reinforced by the development that has gone before. What one purchases is Deer Valley, not the individual projects. If Deer Valley is overwhelmingly attractive, the projects will sell themselves.

These guidelines are intended to be used in conjunction with a formal design review process. They are not a "building code," but recommendations for good design. They are meant to give the developer a good sense of what the Design Review Committee will be looking for. The suggestions contained here are the result of considerable research and experience, but the basic intent is to leave as much design freedom as possible to the developer.

In the broadest sense, the guidelines are meant to ensure that the "spirit" of Deer Valley isn't undermined by arbitrary, unthoughtful design. This "spirit" is absolutely critical to the success of the area and the individual developments, and for this reason alone it will behoove any developer to adhere to the design guidelines as much as possible.



Site Development

Major Goals

- + Preservation of the existing character of the building site;
- + visual and physical adaptation of the building to its site.

Exterior Building Design Guidelines

Major Goals

At Deer Valley, building massing, roofscape, walls and site relationships should emphasize:

- + Human scale;
- + the avoidance of allusions to "alpine" and all other building forms foreign to the area;
- + the avoidance of allusions to "mineshaft" architecture and other industrial building forms, even if indigenous to the area;
- + proximity to the ground - so that the buildings "hug" the ground, rather than dominate the site;
- + adaptation to the site in every possible way, including its severe climate, its terrain, its pattern of shade and sunlight, its trees and vegetation.

1947-1948

1949-1950

1951-1952

1953-1954

1955-1956

1957-1958

1959-1960

1961-1962

1963-1964

1965-1966

1967-1968

1969-1970



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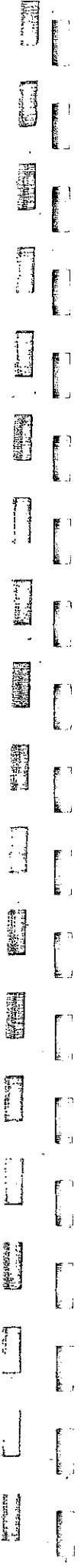
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Trees, Shrubs, Wildflowers/Forbs, and Grasses
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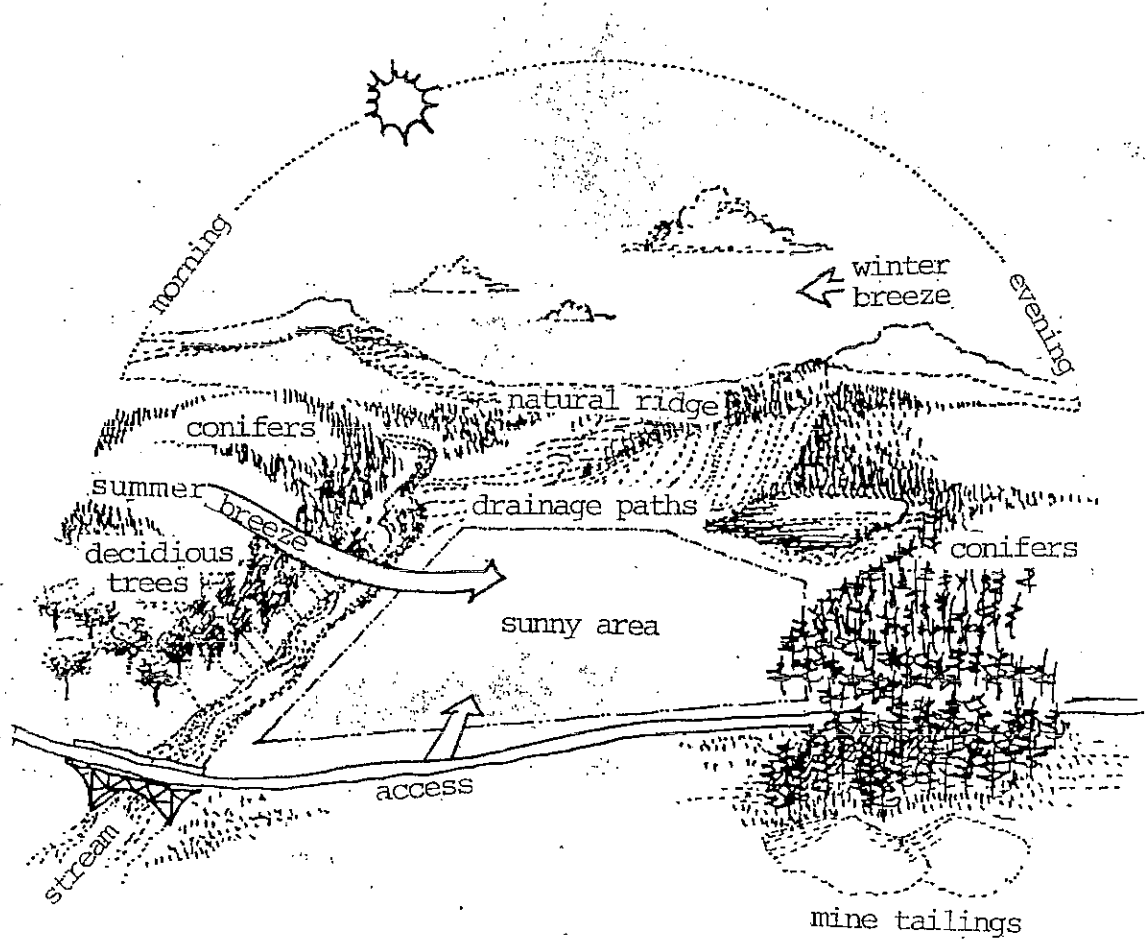
Site Evaluation

The initial step in any building design is an evaluation of the site. The objective of site evaluation is to identify the site's problems and opportunities:

- + the site's land mass features - ridges, buttes, slopes, etc.;
- + existing vegetation;
- + existing grades;
- + prevailing storm winds;
- + sunlight patterns;
- + existing access and circulation;
- + sources of pleasant and unpleasant sounds.

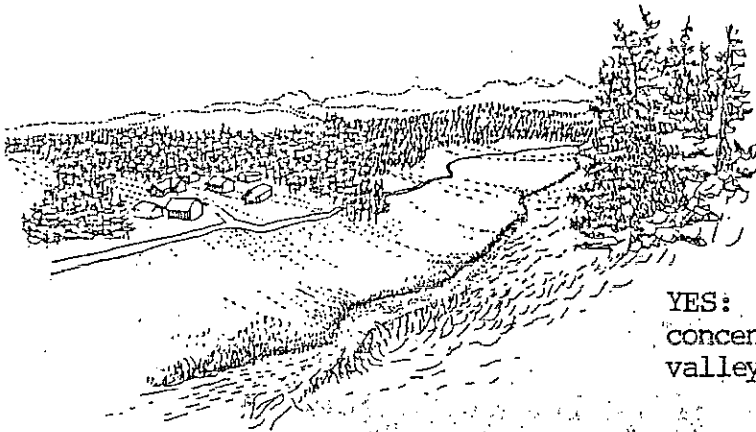
The site evaluation should make use of relevant consultants - architects, civil engineers, soils engineers, landscape architects, solar consultants, geologists and other specialists, as required. It should draw on topographic surveys, site photos, soils reports and any other documentation helpful to forming an accurate picture of the site's real condition.

This evaluation, together with back-up documents, is an important part of the material to be submitted to the Design Committee.



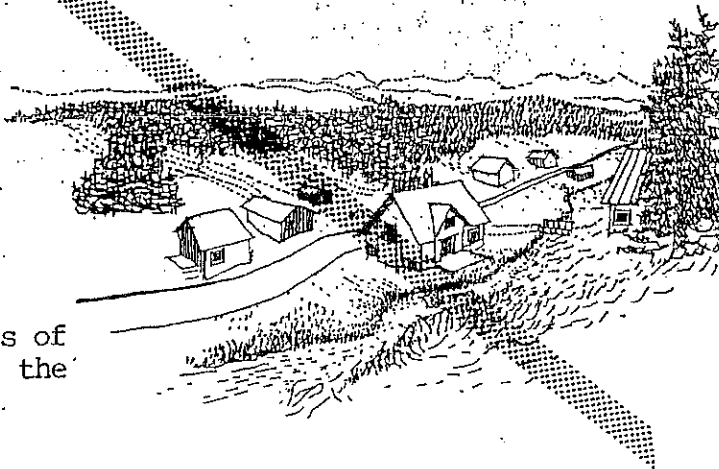
Preservation of Existing Land Forms

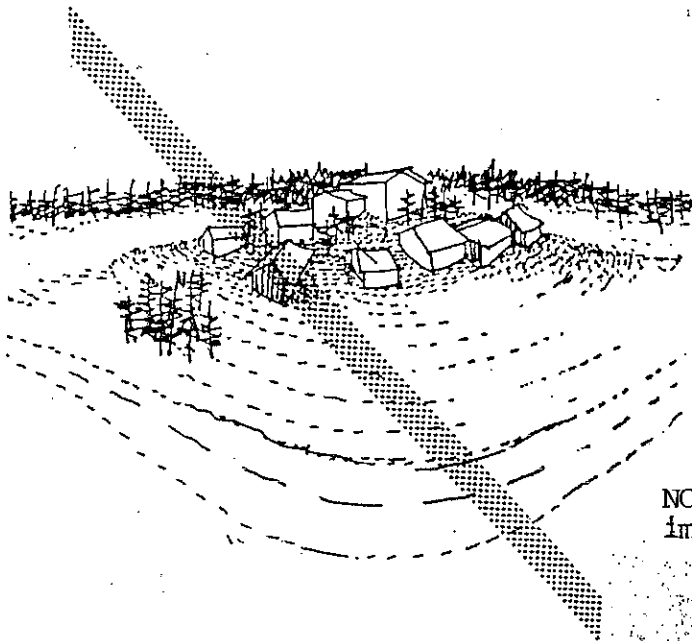
Any site at Deer Valley is likely to have its own unique land form features. Whenever possible, these existing features should be preserved and reinforced by new construction. The objective is to fit the buildings to their sites in a way that leaves the natural massing and features of Deer Valley intact, treating the buildings as an integral part of the site, rather than as isolated objects at odds with their surroundings. A basic rule of thumb is never to build on the best part of a site but to preserve it in its natural form.



YES: When site improvements are concentrated properly, sense of valley is preserved.

NO: Valley is hidden in a mass of new construction spread across the landscape.





NO: Knoll destroyed by site improvements.



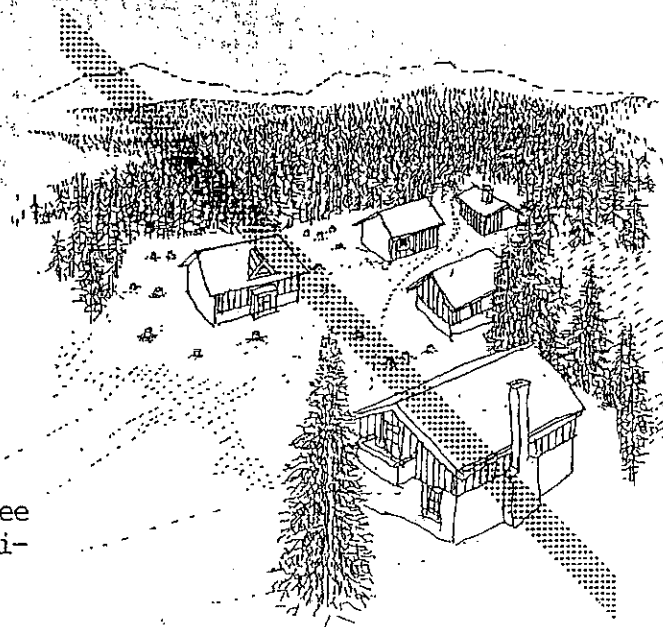
YES: Knoll preserved as amenity.

Preservation of Existing Site Vegetation

Existing concentrations of vegetation are one of Deer Valley's amenities and an important part of its ecosystem. Whenever possible, these concentrations should be preserved and reinforced by new construction. The objective is to work with what exists, adding new vegetation that is compatible with Deer Valley's indigenous plant life.



YES: Buildings are located to preserve and utilize existing tree masses.



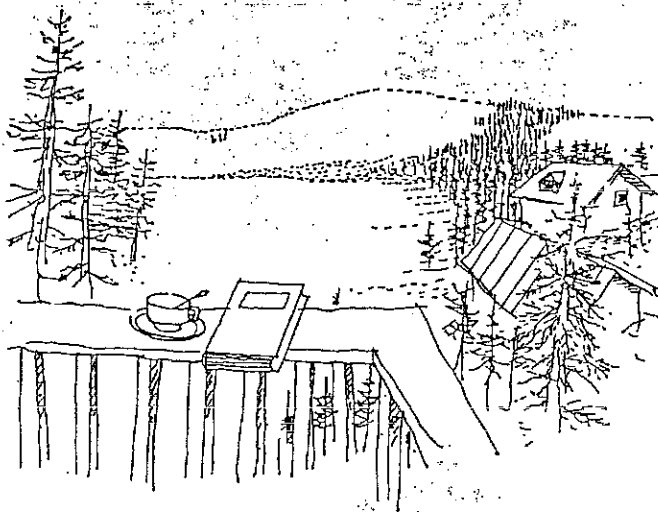
NO: Buildings obliterate tree masses and lose trees as amenities.

Preservation of Significant Views

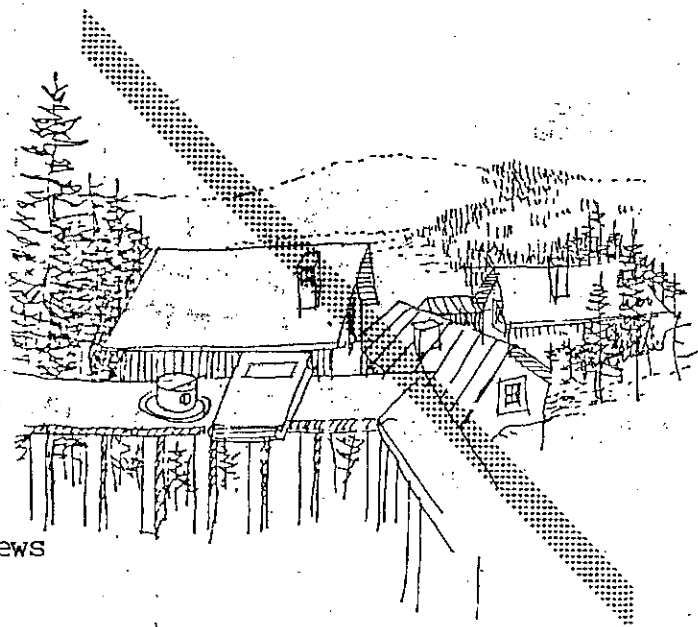
Two kinds of views are important at Deer Valley:

- + views from a site;
- + views through a site to features beyond.

Both kinds of views should be preserved. The objective is to create as many opportunities for views as possible, within the constraints posed by the site. The emphasis is on views from the site, but new construction should not obscure the views of others.



YES: Preserves off-site view by creating view corridor.



NO: Construction blocks own views and others' views.

Location of Construction

New buildings and other construction should be placed on their sites in a way that creates a carefully-scaled relationship between buildings and site features. In general, construction is placed in three locations:

- + within tree masses;
- + at the edge of tree or land masses overlooking open space;
- + out in the open, in areas devoid of trees.

The objective is to give each building a sense of unity with its site and surroundings, and to scale each building, so it does not dominate the site.

Where possible, buildings should be fitted into existing tree masses. (Figure 1 and 2)

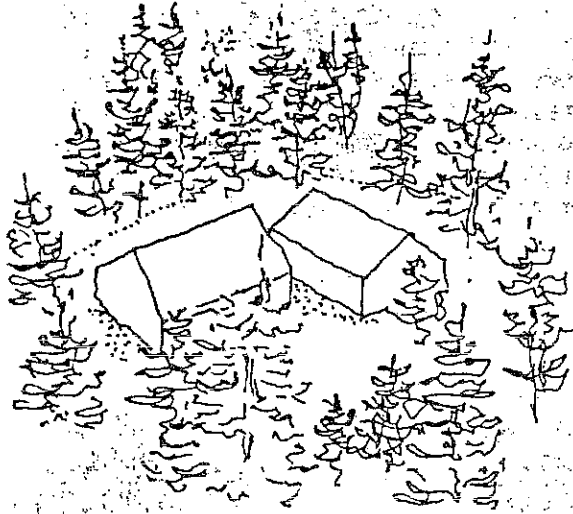


Figure 1



Figure 2

Where this is impossible, buildings should be placed at the periphery of tree or land masses, overlooking open spaces. (See Figure 3) Buildings should be grouped whenever possible, to minimize their disruption of this edge. (See Figure 4)



Figure 3

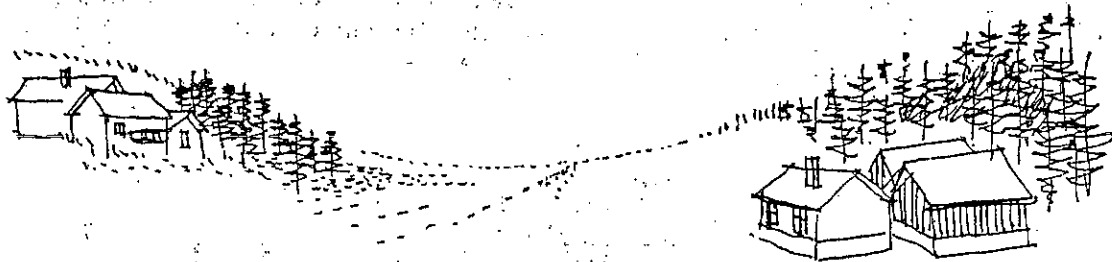


Figure 4

Where neither of these alternatives is possible, buildings may be placed out in the open. (Figure 5) Where this occurs, it is important to use building massing and landscaping as tools for relating the development to the natural features of the area. In particular, clustering is recommended as a means of reducing the buildings' impact on an open site.

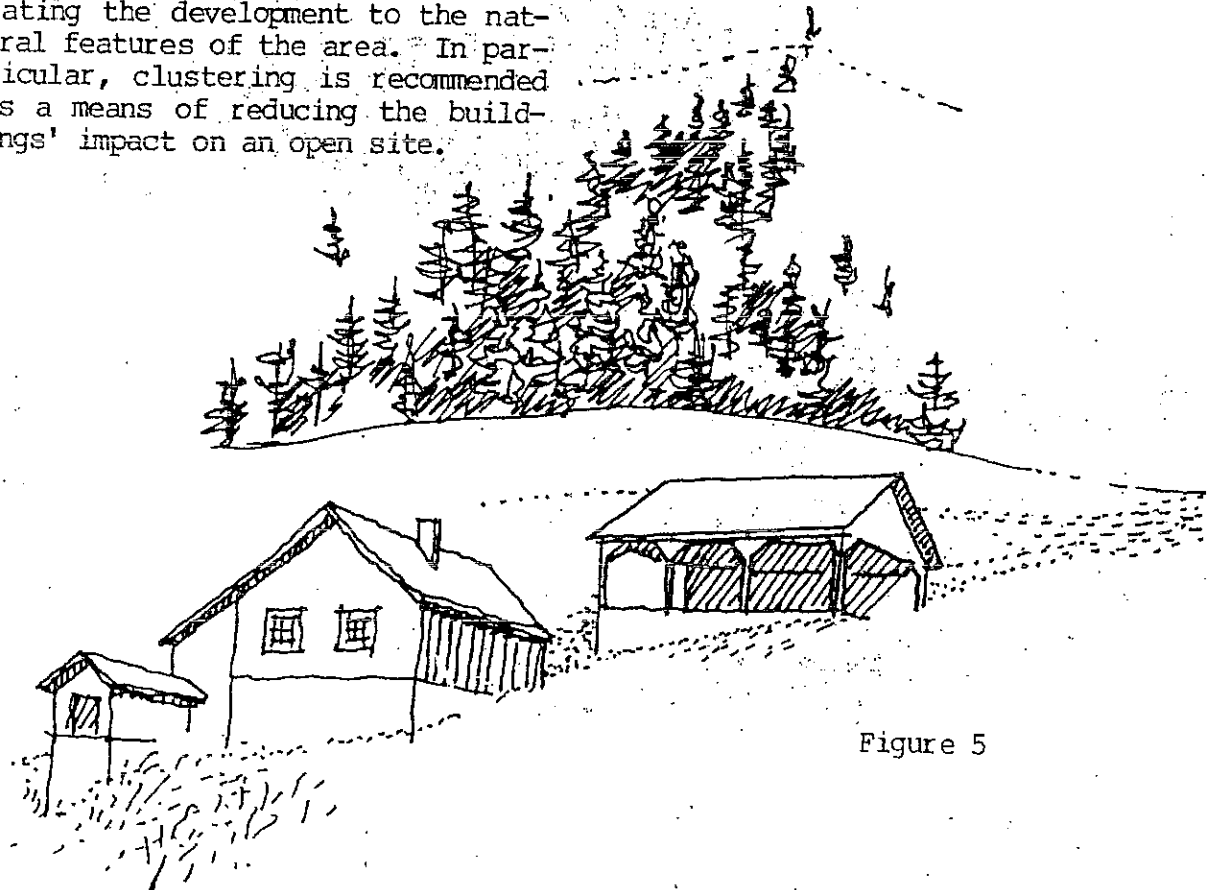


Figure 5

Predominant Roof Shape

Roof shape is important in terms of organizing the massing of buildings, especially at the edges of tree or land masses or in the open. The objective in determining roof shape is to establish a visual order to building clusters.

In visually adjacent building groups and clusters, a single roof shape should predominate. (Figure 6)

The predominance of one roof shape, e.g., a gable roof, helps to relate adjacent building clusters. (Figure 7)

In general, the predominant roof shape is set by the initial buildings in each area of Deer Valley. Subsequent adjacent developments are expected to adhere to their precedents unless there are compelling reasons not to follow this example.

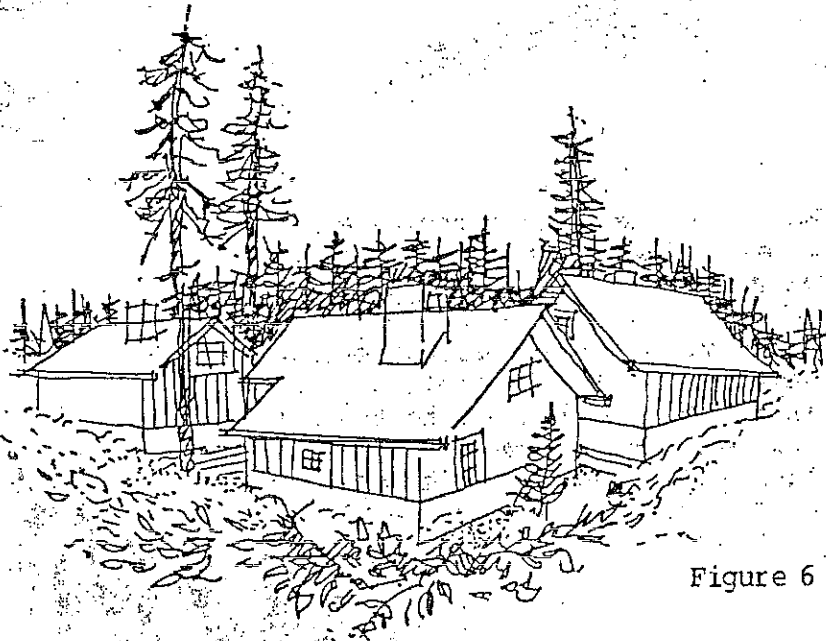


Figure 6

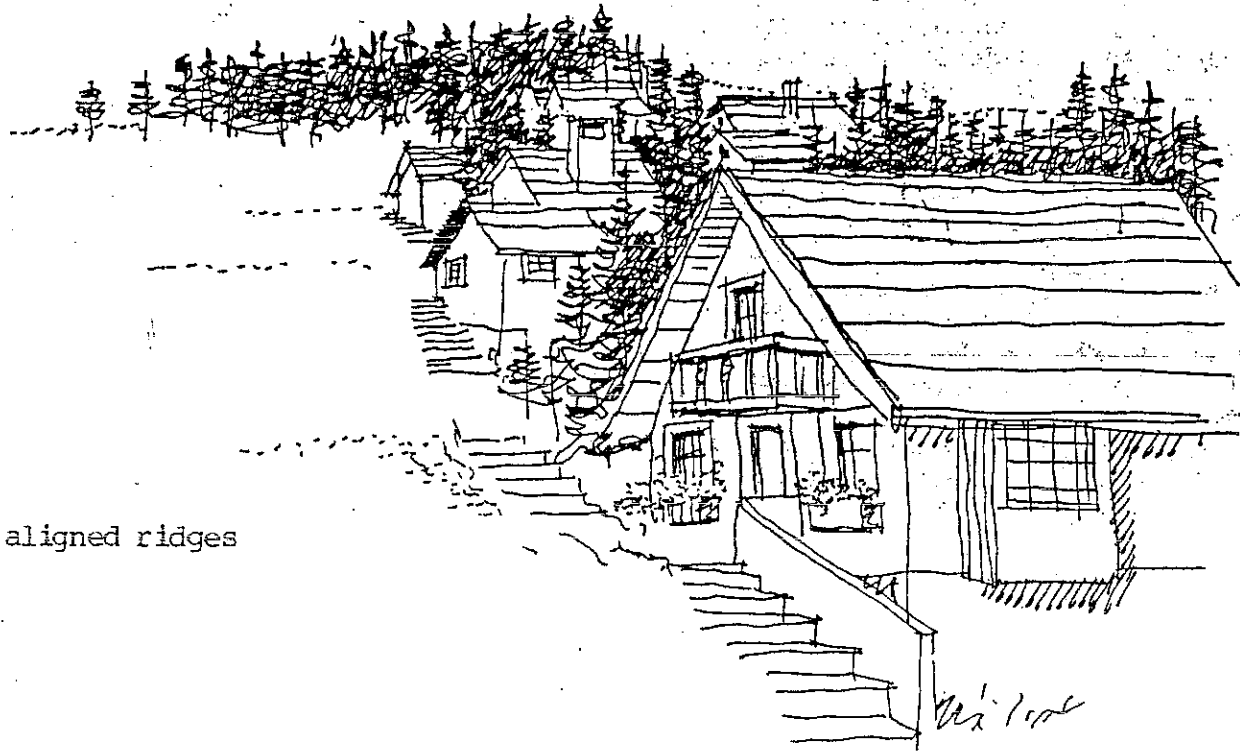


Figure 7

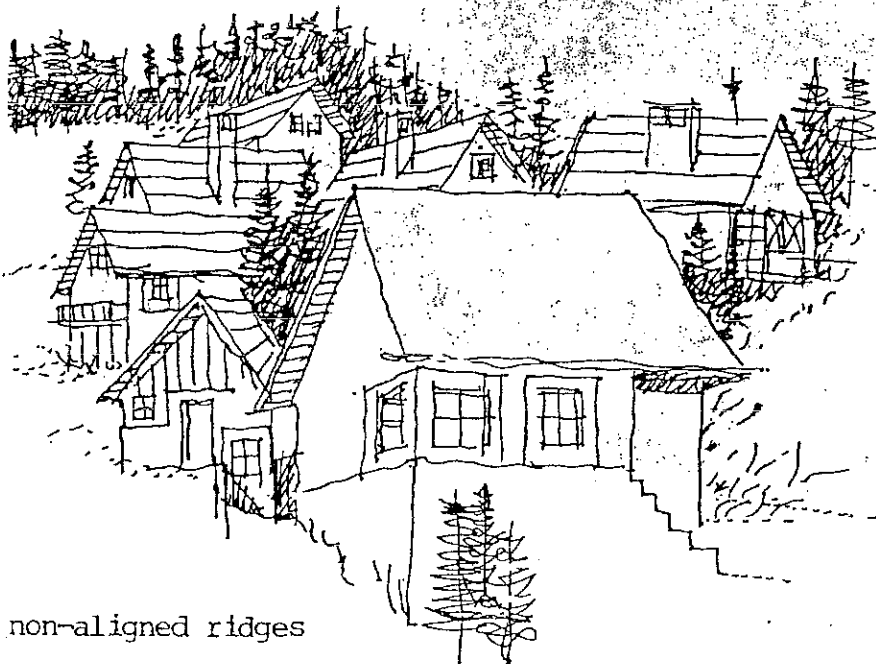
Roof Ridge Alignment

Where development is located at the edge of tree or land masses or in the open, the alignment of roof ridges can enhance the visual impact of groups of buildings. Likewise, non-aligned roofs can also

work well, if handled in a careful and organized manner. In determining roof ridge alignments, care should be taken to protect entrances and exterior pathways from falling snow and ice.



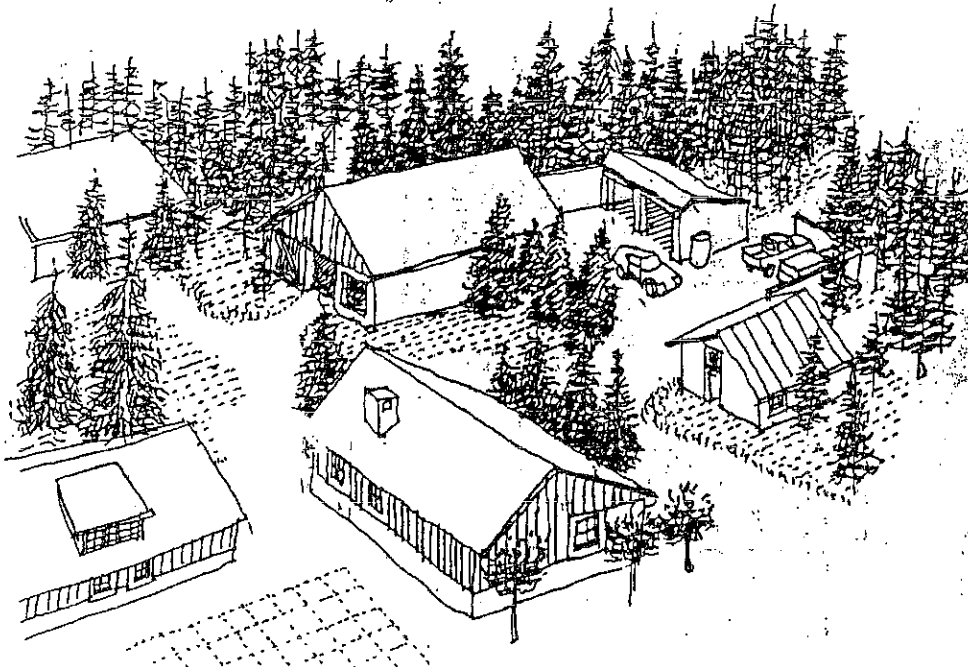
aligned ridges



non-aligned ridges

Screening Service Areas

New construction often includes service areas: garages and other parking areas, storage sheds, mail-box areas, places for garbage, snow equipment sheds, outbuildings for mechanical or electrical equipment, solar collectors, etc. These things can detract from an otherwise well-designed site, and need to be dealt with in a way that keeps this from happening. They also need to be placed so that they can be easily accessible to the people who need to use them. The objective is to design and locate these service areas so they function well and don't become an eyesore to the community. They should be adequately screened, and whenever possible, placed away from other site uses. Screening can be by vegetation, fencing or building placement.



Garage, open parking and mechanical sheds kept away from main buildings and shielded from view by vegetation, fences and building forms.

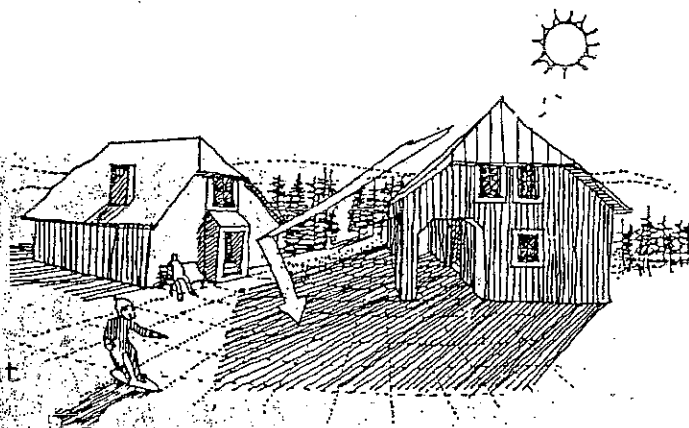
Sunlit Exterior Spaces

In Deer Valley, it is critical that attention be paid to patterns of sunlight in planning exterior spaces in relation to buildings. In the winter, places that are mostly in shadow will be mostly cold and unusable, while places that enjoy sunlight will get used. The objective is to create exterior spaces around buildings that will be used, so it is important that these be placed to get as much sunlight as possible over the course of the day.

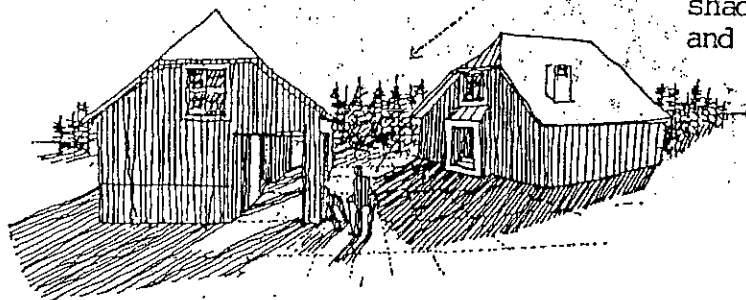
Things to bear in mind:

- + buildings, vegetation and land forms can cast shadows and block sunlight;
- + the surfaces of buildings play a big role in reflecting sunlight into adjoining exterior spaces. Color and choice of materials are important in this regard.

building face reflects sunlight into open space.



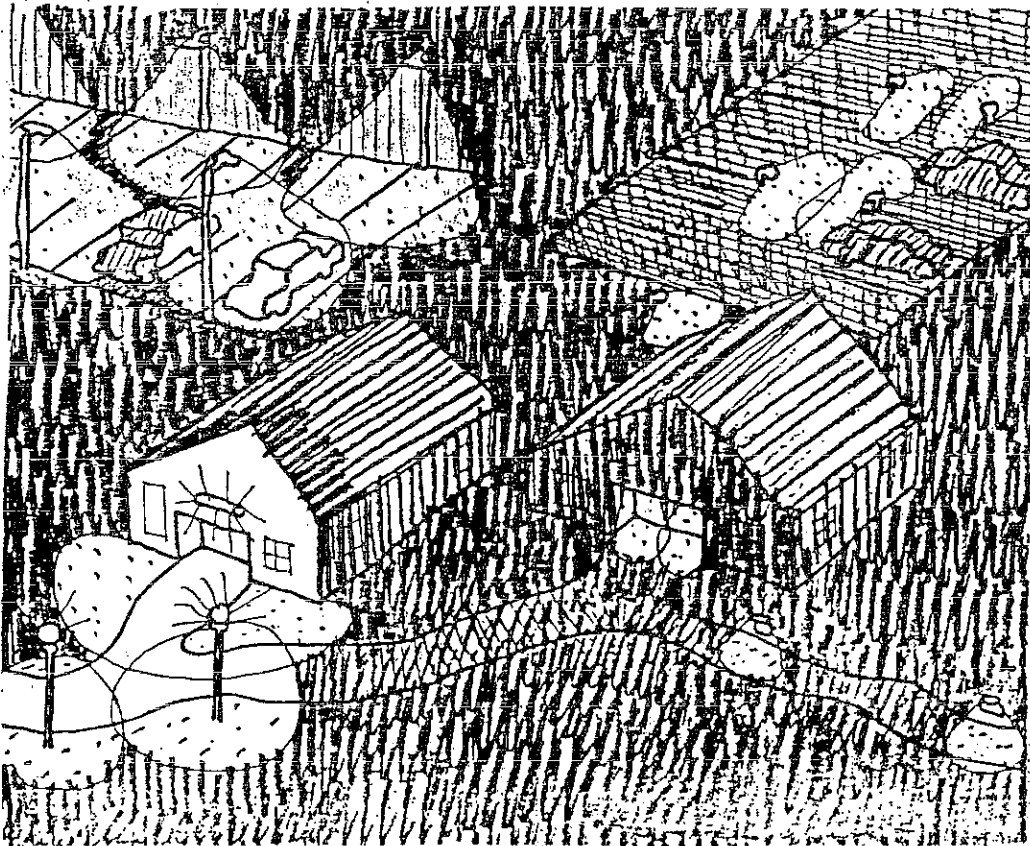
careful consideration given to shadows cast by buildings, fences and trees.



Night Lighting

Good night lighting is essential for safe movement, but good lighting is often equated with large amounts of lighting, which can detract from site quality by obliterating night views and interfering with people's rest. The objective is to provide night lighting discretely, illuminating only what needs to be lit. In general, light sources should be shielded and directional. Bright lighting of large areas should only occur where absolutely required by safety considerations.

Every submittal for review by the design committee should include an indication of how night lighting is to be provided. This should be shown in plan, with accompanying specifications and any other material necessary to aid an evaluation by the committee.

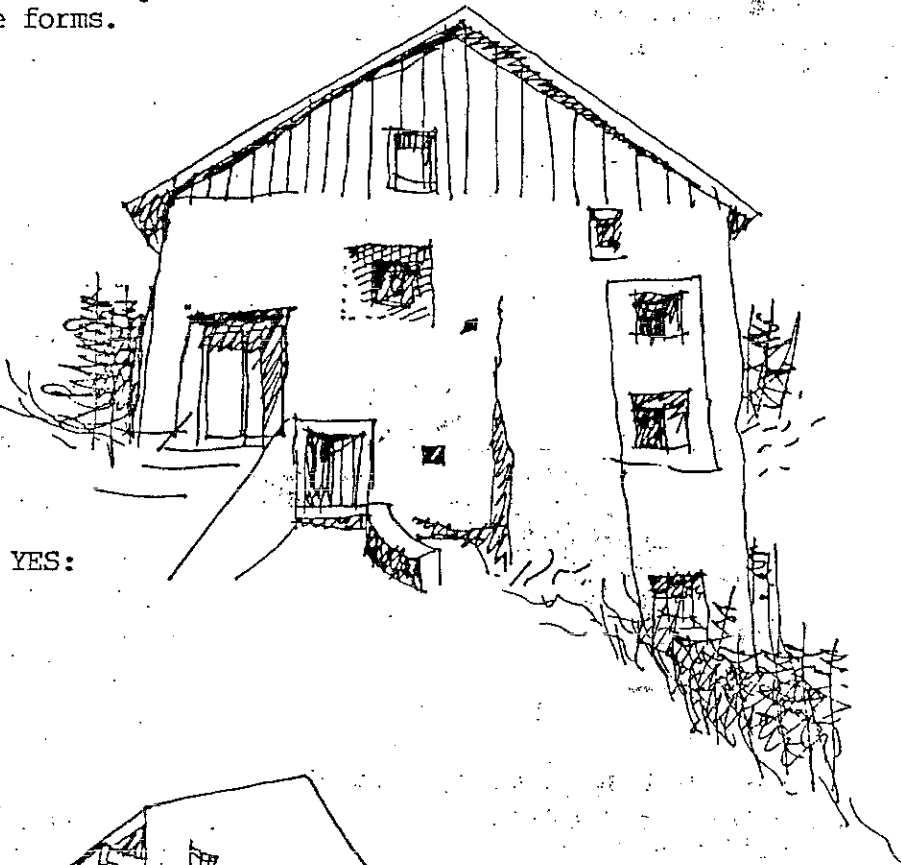


NO: Avoid area illumination and unshielded light sources.

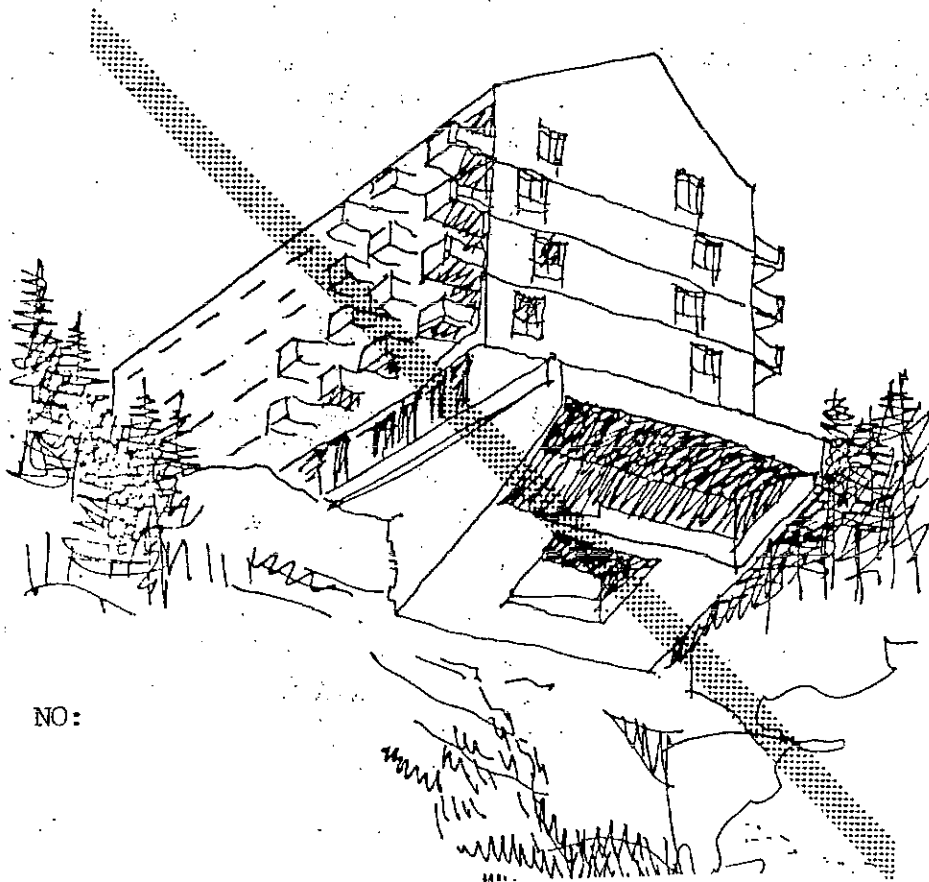
YES: Discreet lighting of only critical areas.

Building Follows Contours

The placement of buildings at Deer Valley should respect existing land forms. They should follow contours and fit into existing land massing, rather than ignoring and dominating these forms.



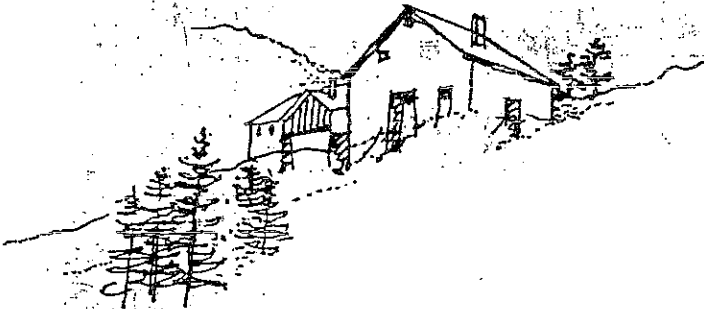
YES:



NO:

Continuing the Lower Wall to the Ground

The "sense" or "impression" of a building should be that its walls continue down to the ground to give a feeling of solidity and repose. Undue "chewing out" or eroding of the building form should be avoided.



YES: Wall surfaces continue downward. The building seems to rest solidly on the ground.



NO: Walls are held off the ground by thin members. The building seems to float in air.

Scale of Building

It is important that the massing of buildings at Deer Valley be scaled in such a way that they relate to the people living there and harmonize with the area and its natural features - particularly when buildings are located at tree or land mass edges or in the open.

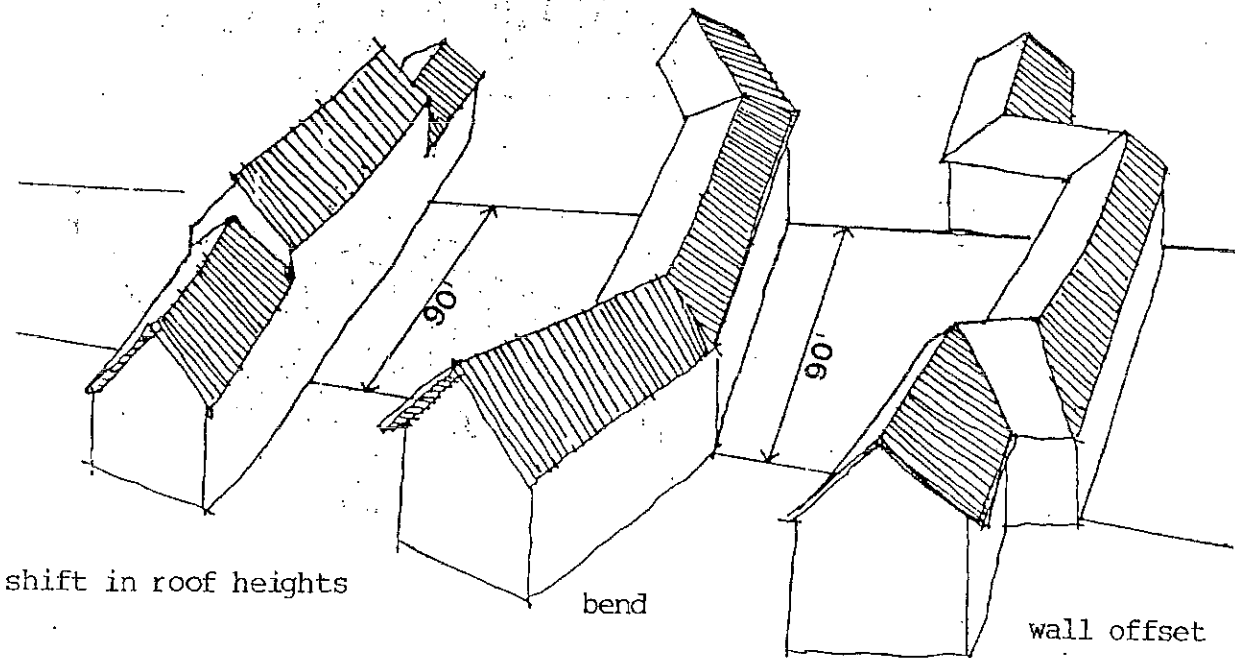
No unbroken expanse of building mass may exceed 90 feet. When the 90-foot limit is reached, one of the following must occur:

- + the building mass must bend;
- + the wall line must be offset a minimum of 10 feet;
- + the roof line should shift up or down at least 10 feet, or take on a different ridge alignment.

The idea of this requirement is to ensure that the buildings do not become overpowering. Changing the plane of walls, changing direction and providing some variety in the roof form gives diversity and visual interest.



shift in ridge alignment



shift in roof heights

bend

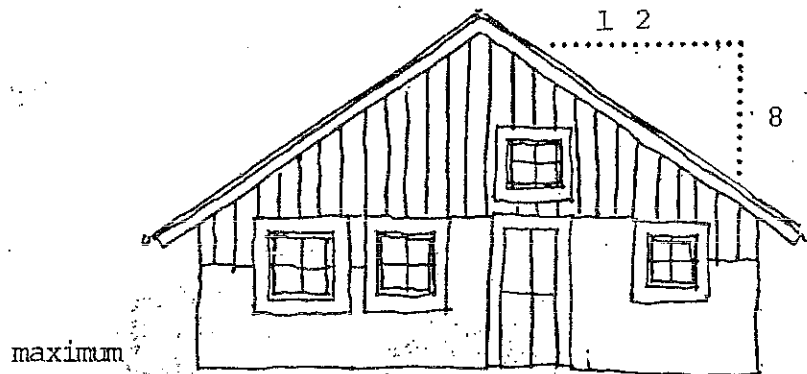
wall offset

Roof Slopes

Roof shape is a major element of building form, and one of the most important contributors to a human scale. The slope of the roof is one determinant of this scale.

Roof slopes at Deer Valley should be between $4\frac{1}{2}/12$ and $8/12$.

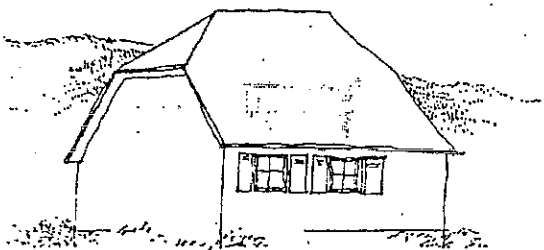
Roofs with greater or lesser slope will generally be prohibited, unless there are compelling reasons for their consideration (see discussion under "Solar Collectors" in Guideline 35).



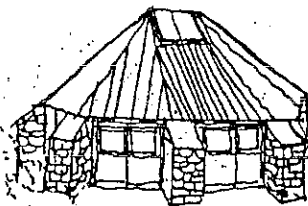
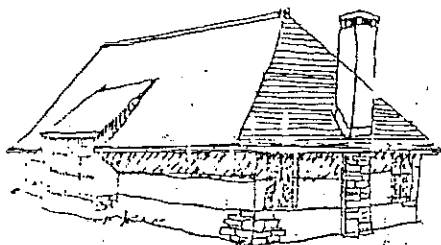
Roof Shape

The following roof types are permitted at Deer Valley:

- + partial hip roof;
- + gable roof;
- + full hip roof;
- + conical roof.

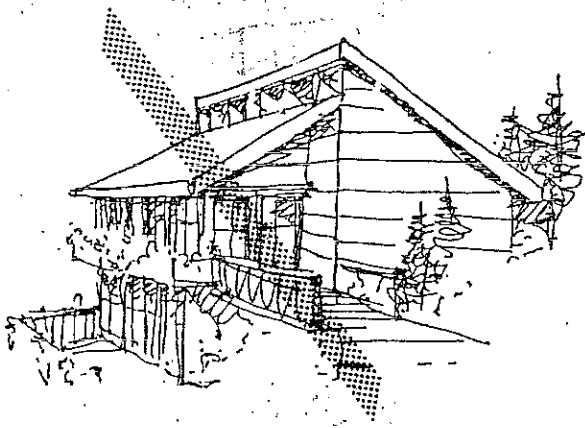
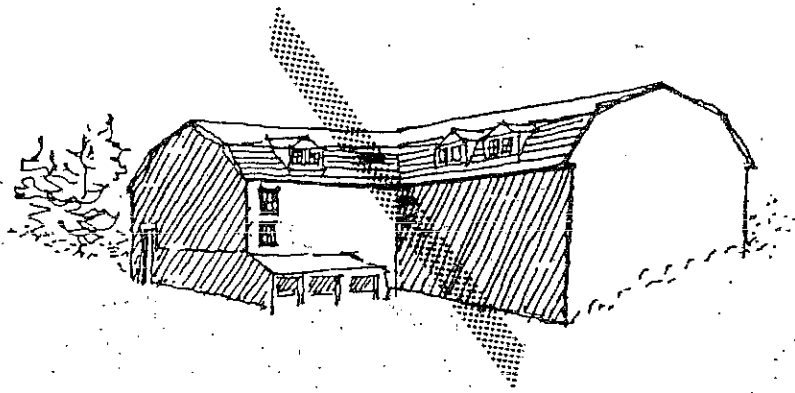


YES

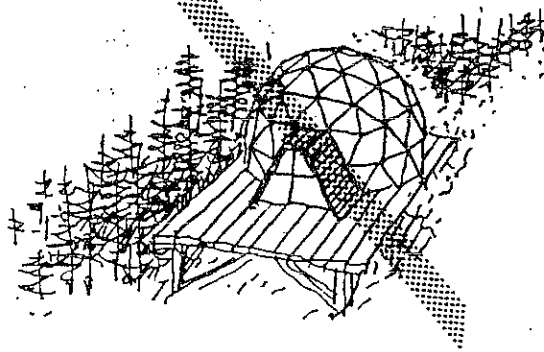
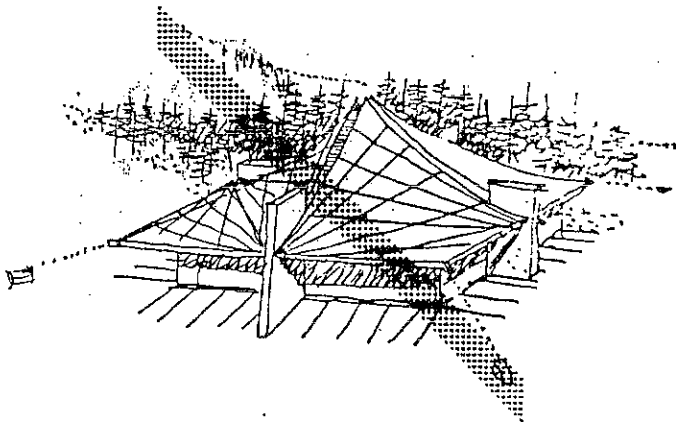
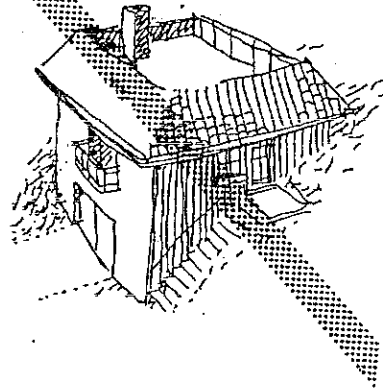


The following are not permitted:

- + mansard roof;
- + fake mansard roof;
- + gambrel roof;
- + joined shed roof;
- + curvalinear roof;
- + domed roof.

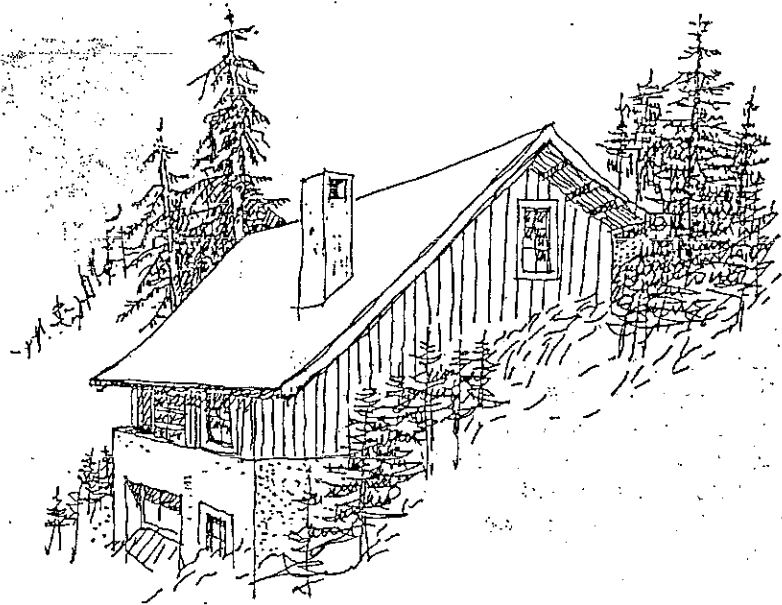


NO



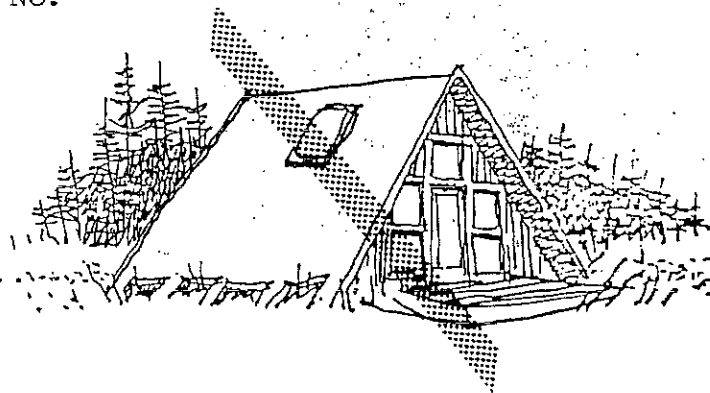
Roofs should not descend closer than seven feet from the ground. It should be clear, when looking at the building, that the function of the roof is to provide a covering for the buildings, and not to become a major element in the building's horizontal massing (i.e., the roof is not to be a substitute for a wall).

Roofs descending from the ridge of the predominant main roof must have the same slope. They need not be the same length, however.



YES: roof slope the same on both sides of main ridge.

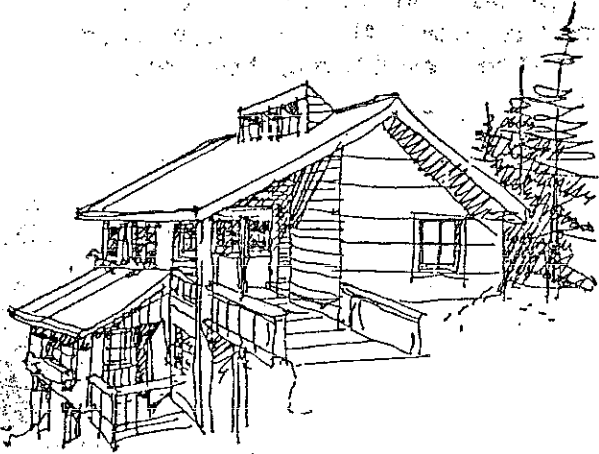
NO:



The following roofs are permitted under certain conditions.

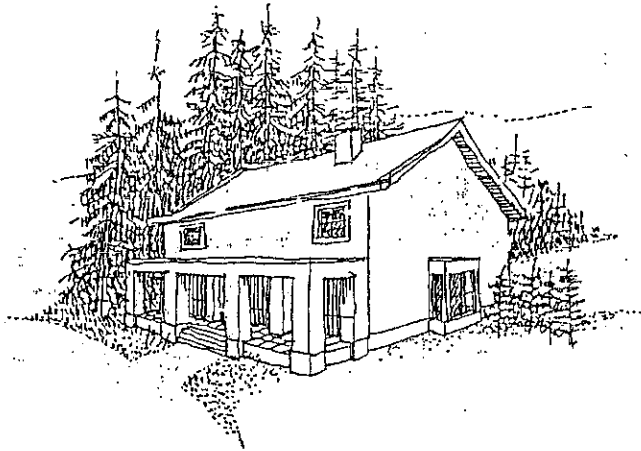
- + Shed roofs: They are allowed if attached to buildings whose predominant roof shapes are one of the types permitted without restriction. They are also allowed in the case of minor, freestanding outbuildings, but a shed roof is not permitted in any outbuilding over 10 feet in height or 150 sq. ft. in area. No other use is permitted. Shed roofs cannot be the predominant roof shape in a building.

YES:



- + Flat roofs are unacceptable as the predominant roof shape of a building. They may be used in moderation as a secondary roof shape on buildings with an acceptable predominant roof shape.

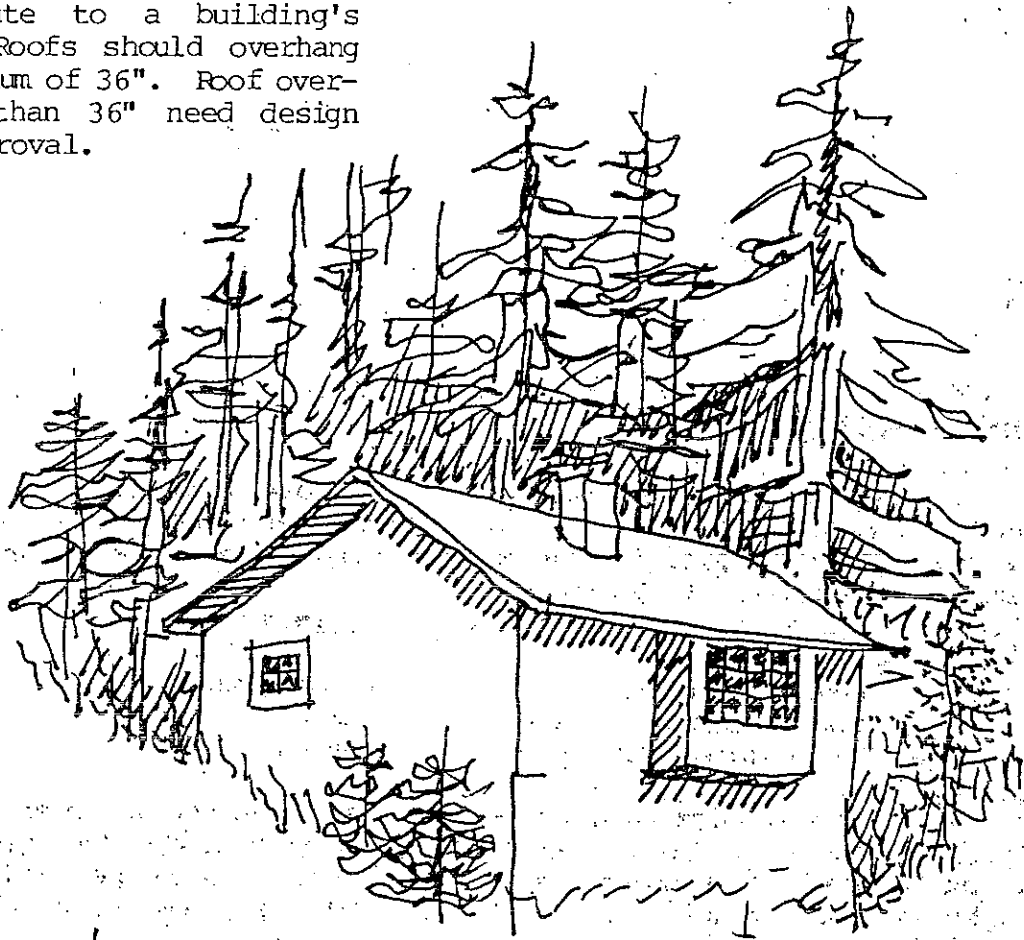
YES:



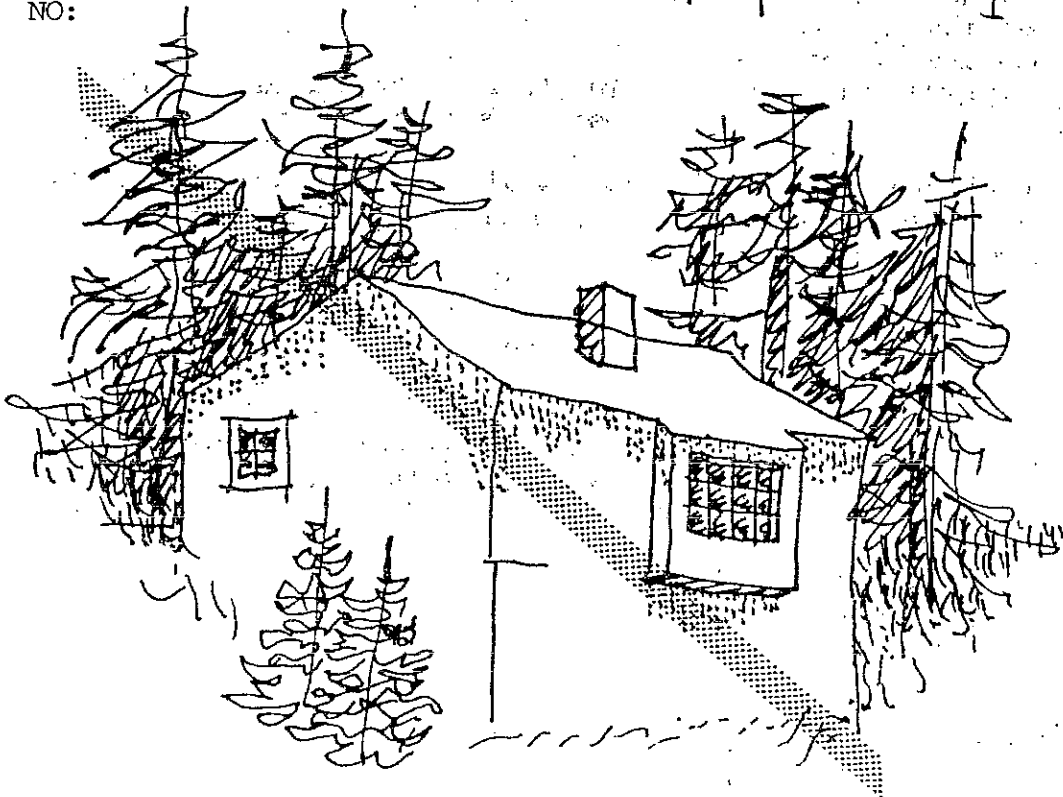
Roof Overhangs

Roof overhangs protect walls and wall openings from rain and snow and contribute to a building's character. Roofs should overhang walls a minimum of 36". Roof overhangs less than 36" need design committee approval.

YES:



NO:



Roof Assembly

In general, cold roofs are recommended.

Roof Surfacing Material

Roof surfacing materials are important as a means of blending the new construction to the existing character of the area. As careful selection of these materials can help to relate the buildings to their surroundings. On the other hand, the wrong color and texture can make the building garish and distracting. From a functional standpoint, the choice of materials depends on the slope and assembly of the roof. The objective is to choose roof surfacing materials that help the building blend with its site and its climatic conditions, and which are also functionally appropriate.

The following metals can be used as roof surfacing materials without coating or other finish:

- + copper;
- + zinc;
- + terne;
- + Kor-ten steel.

The following metals can be used for roof surfacing if color coated with an approved color:

- + aluminum;
- + steel.

The following masonry tiles may be used as roof surfacing materials if of an approved color:

- + ceramic tiles;
- + concrete tiles;
- + slate.

Asphalt-composition shingles, fire-resistant wood shingles and sod roofs may also be used. Note that sod roofs require continuing maintenance.

The following materials may not be used to surface roofs:

- + wood shingles without fire-resistant treatment;
- + slate.

Roof murals are not permitted.

All roof flashing must be of a color harmonious with roof and upper wall surfacing.

Roof Appurtenances

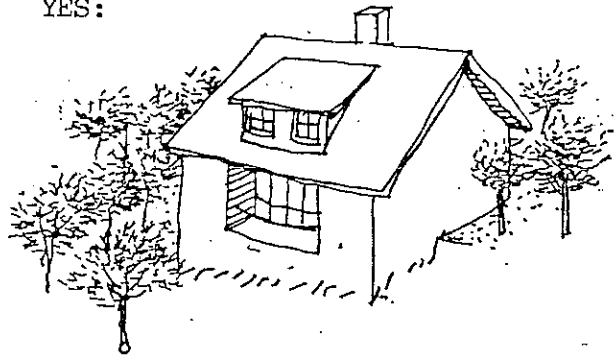
Roof appurtenances - dormers, clerestories, skylights - create interesting, pleasant interior spaces. Their location on the roof is critical to avoiding an over-decorated, visually confusing appearance.

D O R M E R S Dormers can have the following shapes:

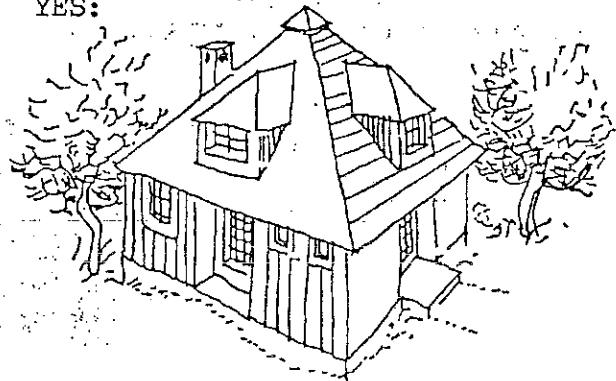
- + shed dormer
- + gable dormer;
- + hip dormer;

Swooped dormers are not permitted. Dormers can be placed at the roof eave or within field of the roof.

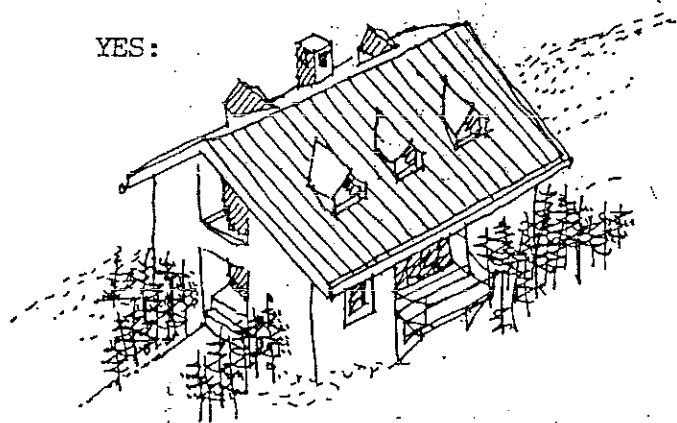
YES:



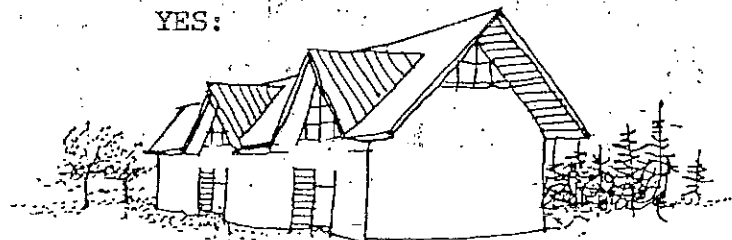
YES:



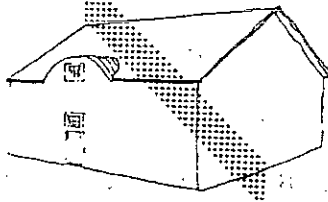
YES:



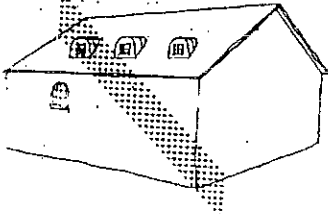
YES:



NO:

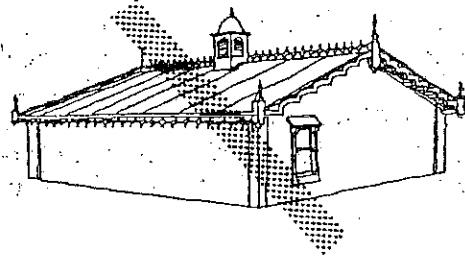


NO:



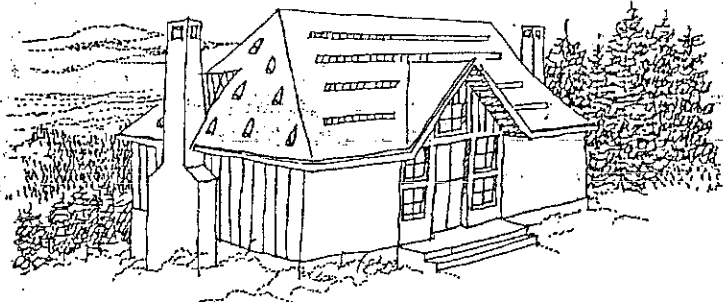
ORNAMENT In general, roof ornaments like finials, scroll work on ridge or barge and eave boards, or decorative turrets are discouraged.

NO:

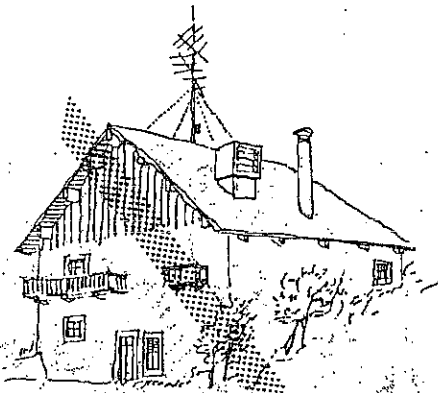


SNOW DIVERTERS Snow diverters and retainers may be necessary installations on roofs. They should be handled as an integral part of the roofscape.

YES:



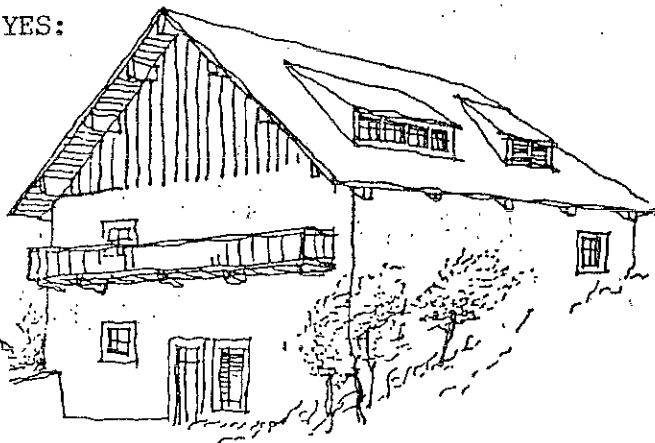
NO:



ROOFTOP STAIRS,
MECHANICAL AND
ELECTRICAL AREAS

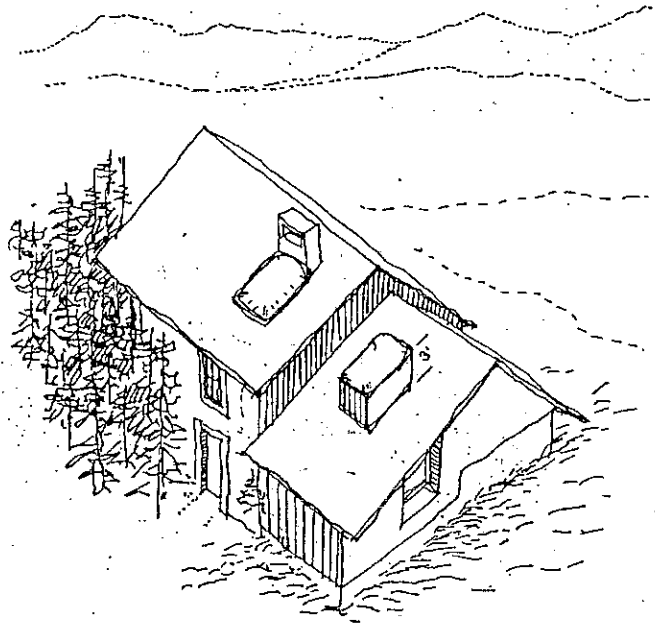
Rooftop access stairways, elevator shafts, vent shafts, mechanical equipment areas, antennae, etc., shall be confined within the roof and within roof dormers, and shall not protrude from the roof to form awkward-looking appurtenances. Cold roof ridge ventilators are permitted.

YES:

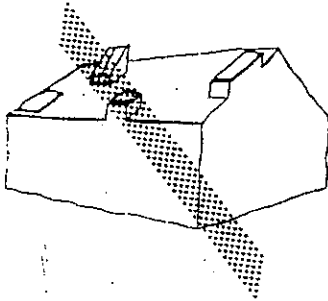


S K Y L I G H T S Skylights can be placed flush against the roof or up to three feet above the roof's surface. Skylights higher than three feet above the roof plane, or placed at an angle with the roof plane, should be avoided. Skylights should not extend to the eave line.

YES:

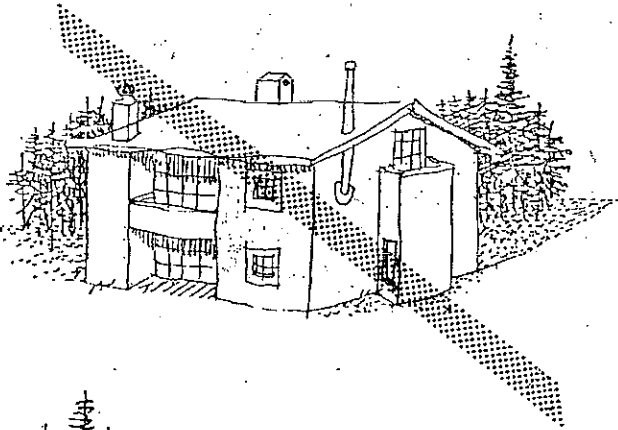


NO:

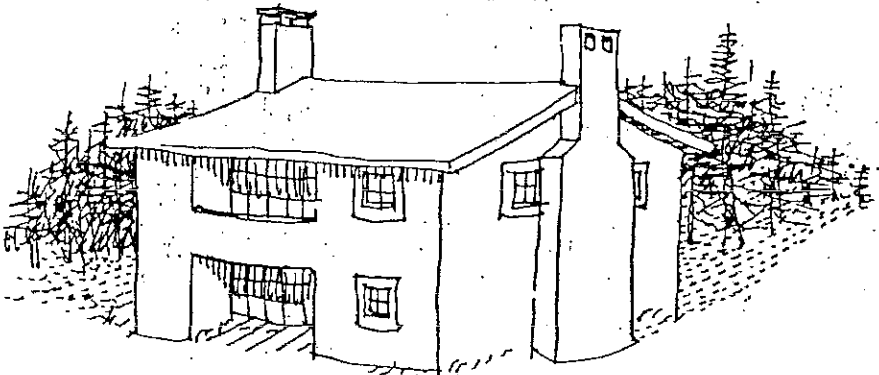


C H I M N E Y S Wood, stucco, concrete and masonry-finished flues are permitted. A flat top is preferred, and side venting of the flue (with a flat cap and spark arrestor) is recommended. Exposed metal chimneys are not permitted.

NO:

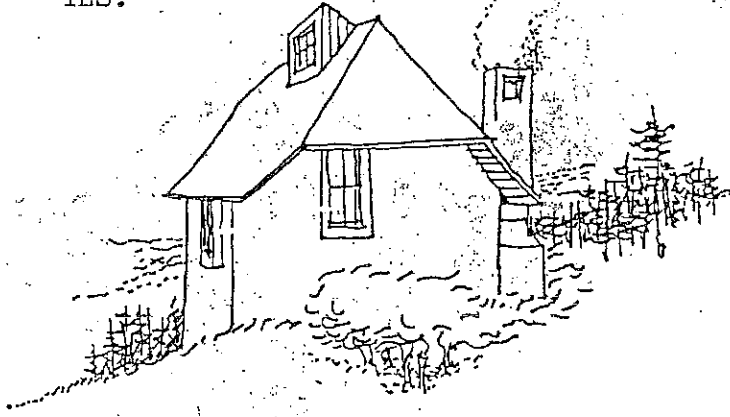


YES:

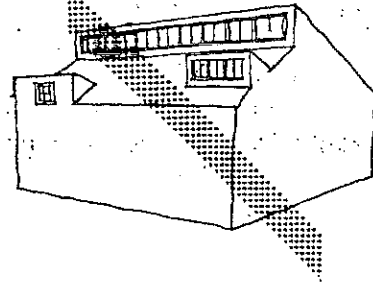


C L E R E S T O R I E S Cleres-
tories should be placed within the
field of the roof, and cannot ex-
tend to the eave line.

YES:

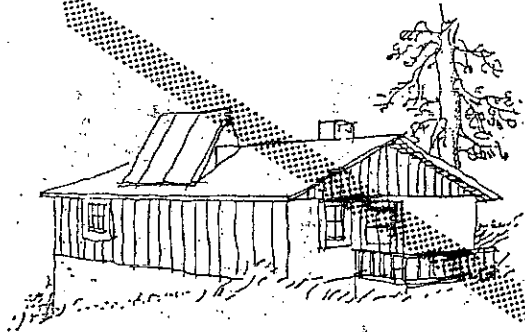


NO:

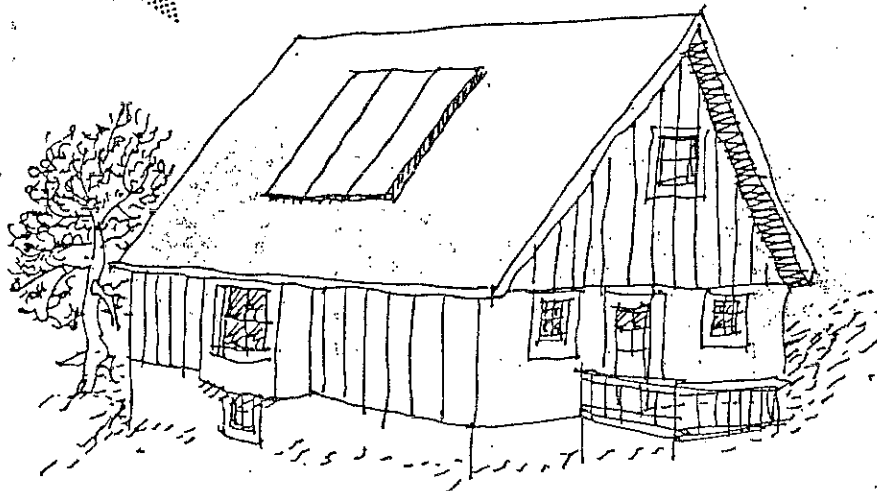


S O L A R C O L L E C T O R S
Solar collectors shall lie flat on
pitched roofs. This slope may ex-
ceed the recommended slope noted
in guidelines 30.

NO:



YES:



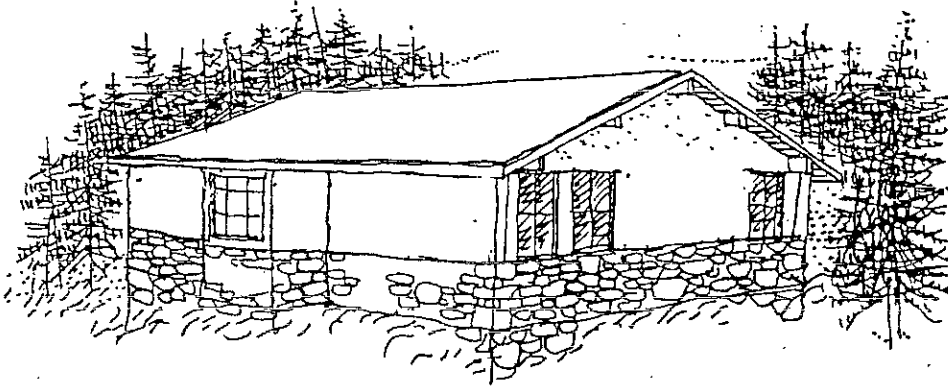
Protected Lower Wall

The lower portions of exterior walls should be protected from extreme weathering and staining as a result of snow accumulation. Snow accumulation varies throughout Deer Valley. Generally, the lower 2 to 4 feet (in some locations the lower 8+ feet) of exterior walls should be surfaced in materials such as:

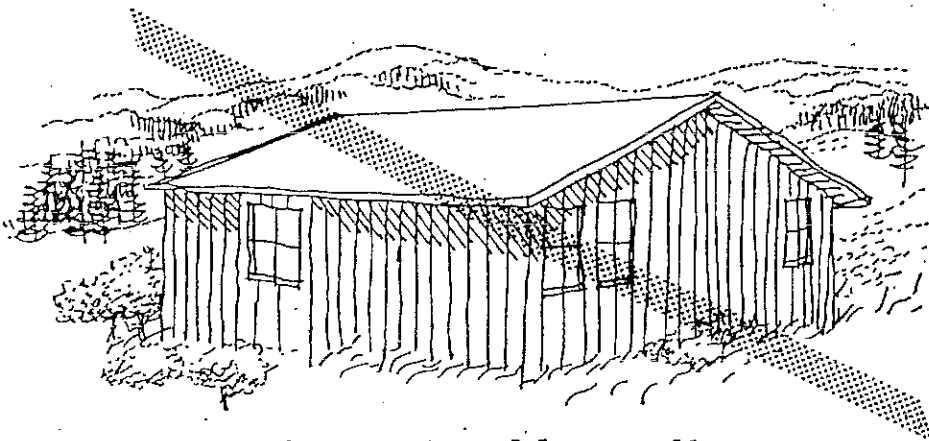
- + concrete block with stucco finish;
- + concrete with an exposed aggregate, bush hammered or sand-blasted finish, or with a stucco dash coat;
- + stone.

Under no circumstances should these lower walls be surfaced with:

- + wood or plywood;
- + aluminum, steel or plastic siding;
- + asphalt composition, transite, shakes or tiles;
- + brick.



YES: Protected lower wall



NO: Unprotected lower wall

Upper Wall Materials

The upper wall materials should convey a sense of human scale and warmth, and the character they convey should be rural rather than urban or industrial.

The upper wall material can differ from that of the lower portion of the wall, or be of the same material.

Upper walls can be surfaced in the following materials:

- + stone;
- + concrete block finished with stucco dash coat;
- + concrete or slate tiles;
- + wood shingles, wood siding, logs;
- + cedar or redwood plywood, stained or painted;
- + stucco or wood framing.

The upper wall may not be made of the following materials:

- + brick;
- + ceramic tile;
- + plastic siding;
- + aluminum siding;
- + steel siding;
- + simulated stone or brick;
- + asphalt or hardboard siding.

Under certain conditions, prefabricated structures using metal siding may be approved.

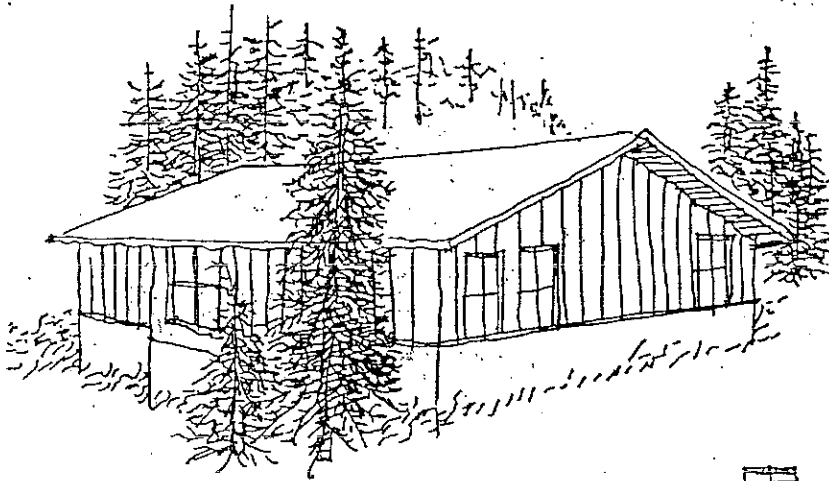
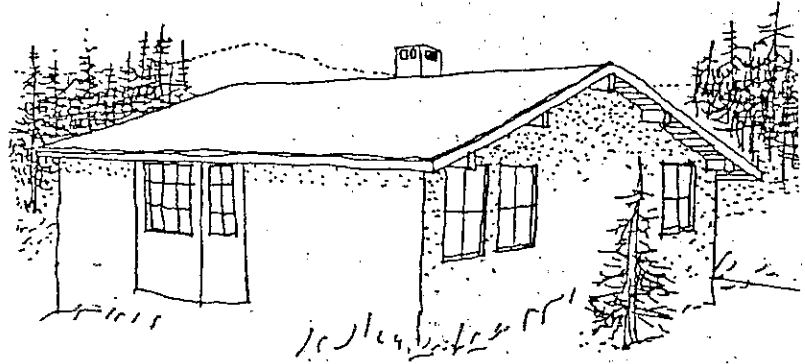
Number of Wall Materials

Changes in wall material can lend visual interest to a building; too many changes can make the wall visually discordant. The objective should be to create walls that are

interesting, but not in competition with their surroundings.

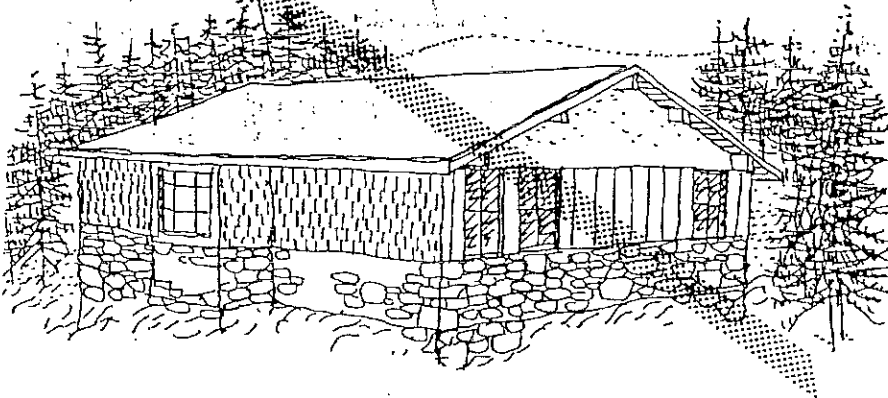
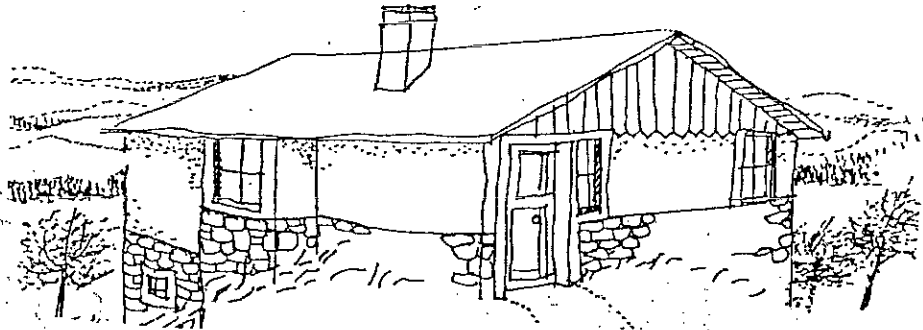
Walls can be surfaced with one to three different materials.

YES: 1 material



YES: 2 materials

YES: 3 materials



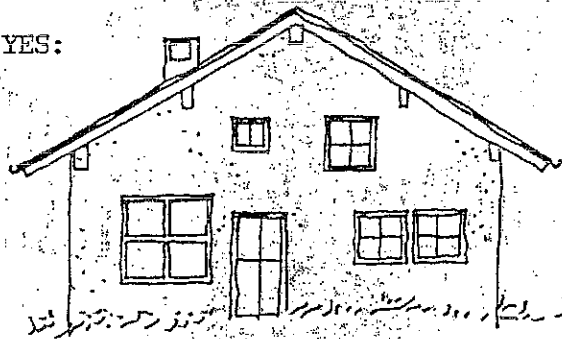
NO: 4+ materials

Wall Openings

Window, door and porch openings are an important element of a building's form and appearance. It is important that the walls of buildings give the impression of thickness and substance. Openings in the wall should seem incidental to the wall itself. The wall shouldn't appear to be just infill between these elements.

Openings in walls should be designed so they read as single holes in the wall surface, rather than continuous bands of horizontal or vertical surface.

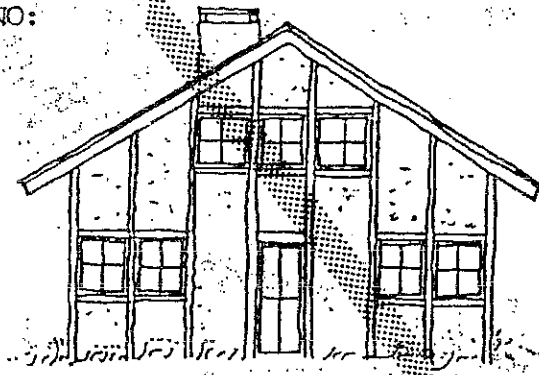
YES:



NO:



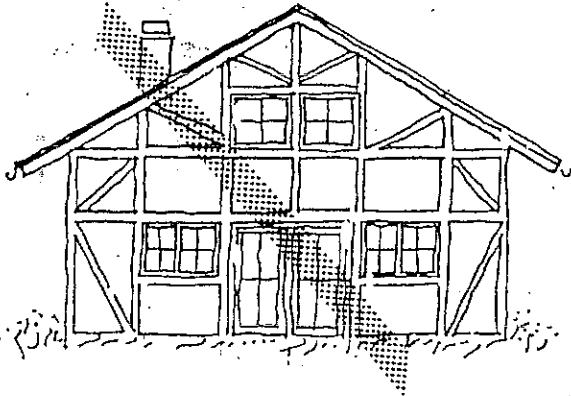
NO:



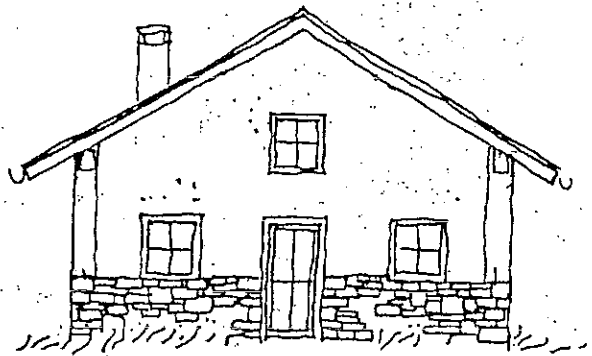
This guideline implies that half-timbered wall treatment is not recommended. But a pilaster treatment of the wall may be acceptable.

Rectilinear wall openings are preferred.

NO:



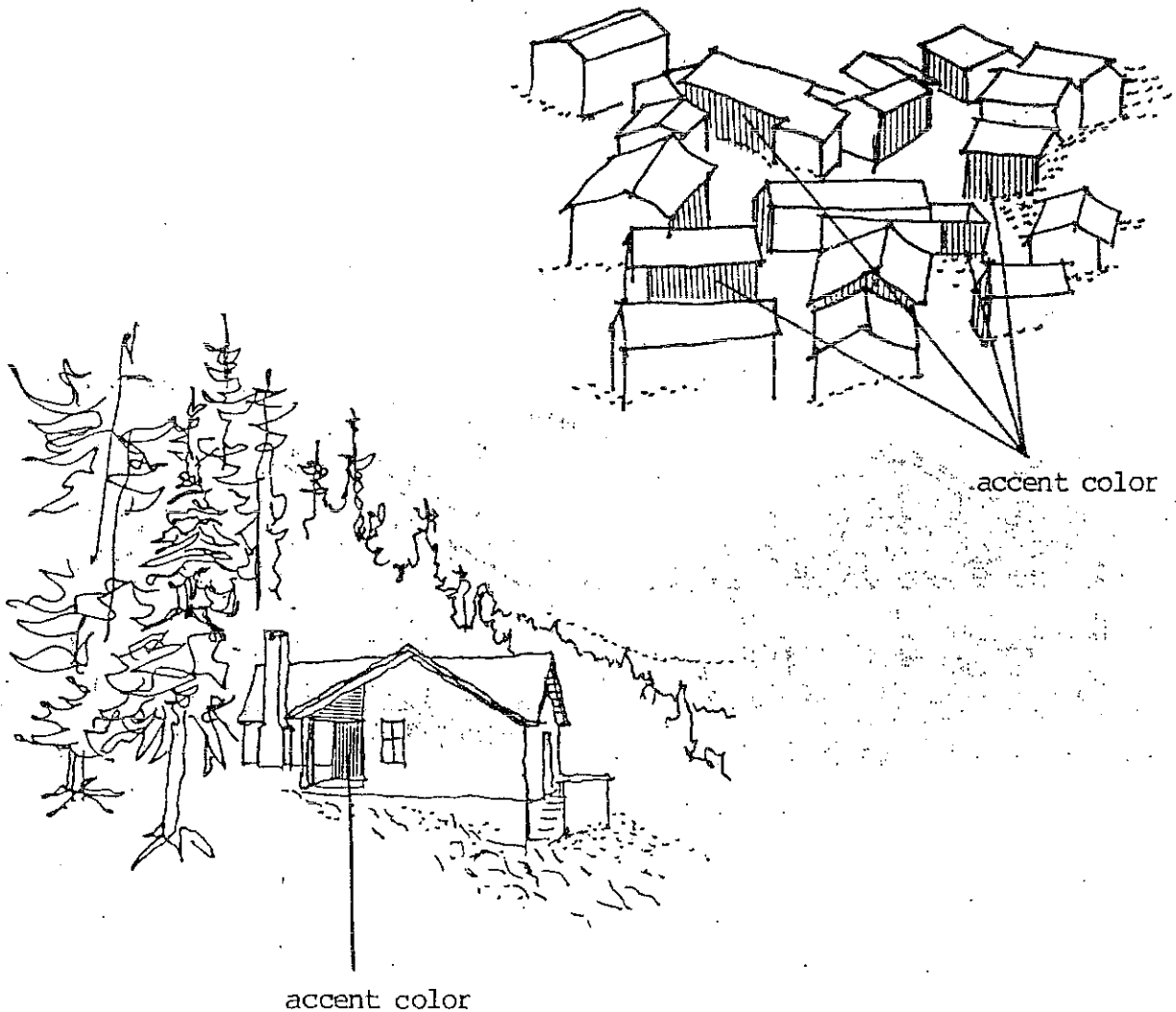
MAYBE:



Color Palette

Exterior wall colors should harmonize with the site and surrounding buildings. Accent colors on wall surfaces can enliven buildings. However, their location should be confined to entries and gathering points, which do not disrupt the overall harmony of the area.

On exterior walls, the predominant tone should tend toward warm, earthy hues - whether in the natural patina or weathered color of the wall surface itself or the color of the paint, stain or other coating. Bright and dramatic colors can be used for accent on exterior wall areas hidden from general view.



Windows

Windows may be constructed of wood or of wood covered with color-fast vinyl or aluminum. Metal or metal covered windows must be coated with an approved finish.

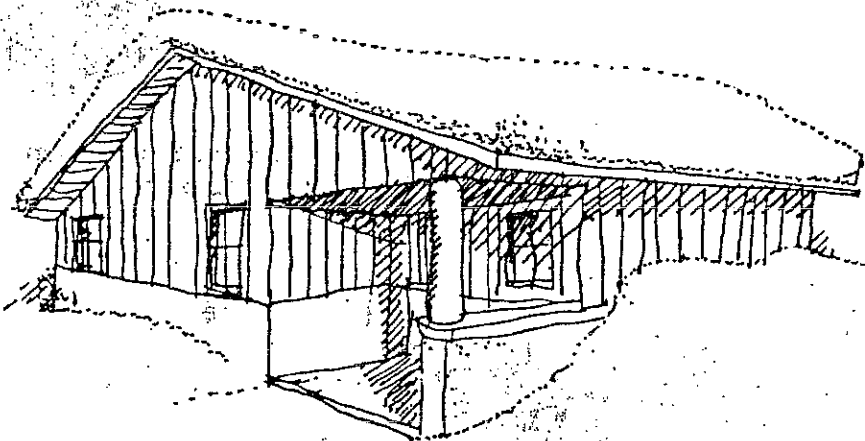
Amendment No. 1, 8/11/81:
Windows should be rectangular in shape. Circular, elliptical and arch-formed windows are not acceptable.

Door Openings

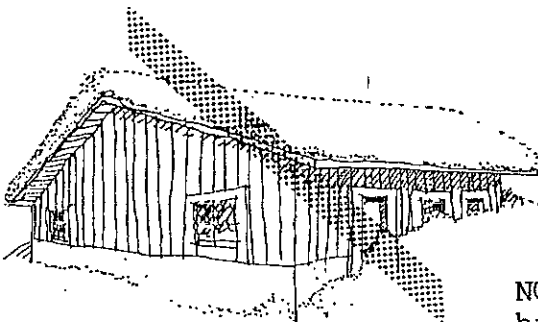
Door openings separate two completely different environmental conditions. Door openings should be protected from the wind and from overhanging or drifting snow. Vegetation, fences, extended walls, roofs, and other features of the site or building can help shelter people in the vicinity of building entries.

Where possible, doors should open onto exterior areas that receive sunlight.

Amendment No. 1, 8/11/81:
Doorways should be rectangular in shape. Arch-formed doorways are not acceptable.



YES: Entry door is sunlit and protected from wind and snow

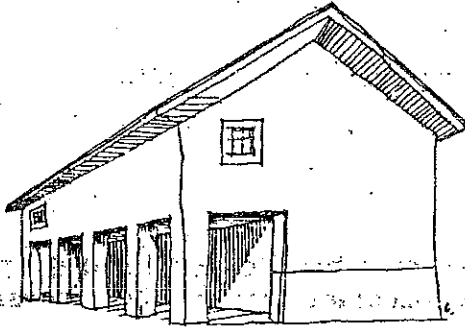


NO: Snow build-up on roof poses hazard for entry door use.

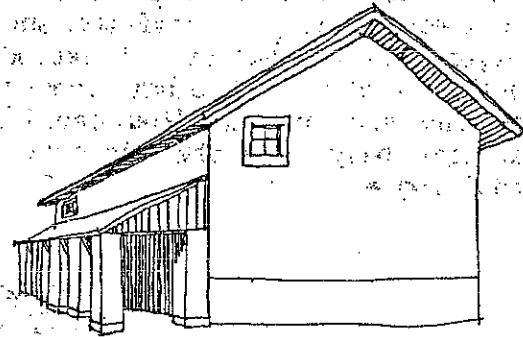
Arcades

Arcades are useful in protecting entry areas and areas of external circulation from wind, rain and snow. They also lend a human scale and visual interest to building facades.

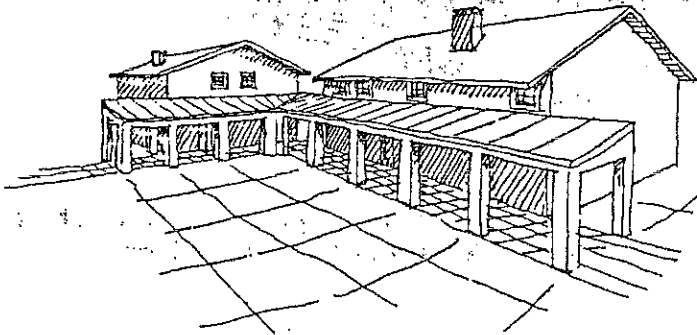
Amendment No. 1, 8/11/81:
Arcade openings should be rectangular.



Arcades can be designed within the basic mass of the building.



Arcades can be attached to the basic mass.



Arcades can be used to connect several buildings.

Wall Appurtenances

Wall appurtenances can help enhance the functioning of windows and doors, and lend visual interest to the building facade. They can also strengthen the relationship between a building's interior and its exterior surroundings.

Like roof appurtenances, wall appurtenances should not be overstated or overly-decorated. Above all, they should be functional, and not simply replications of things seen elsewhere.

WALL DECORATION

Wall decoration - painted, relief or trimmed design work - is not recommended. Where it occurs, it should be confined to wall surfaces that are not in public view.

WINDOW AND DOOR

SHUTTERS These are useful in protecting building entries and openings. They should be operable, and made of wood. Their design should be simple and straightforward, without undue decoration. (Figure 8)

BAY WINDOWS AND

FLOWER BOXES These should be designed in a simple and direct manner. (Figure 8)

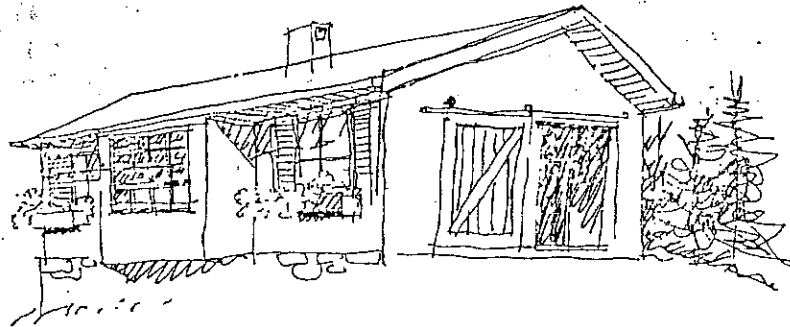


Figure 8

SHOP FRONTS Shop fronts can make use of the wall appurtenances discussed in Guideline 48. They can also make use of such special features as signage and street furniture, where these relate strongly to the shop's nature and purpose.

In general, shop fronts should avoid gimmickry, garishness and excessive ornamentation. They should be simple and direct and depend mainly on interior views of displays and shop space for interest.

It is recommended that consideration be given to protecting the shop views from the elements by providing arcades, overhangs and porches. (Figure 9)

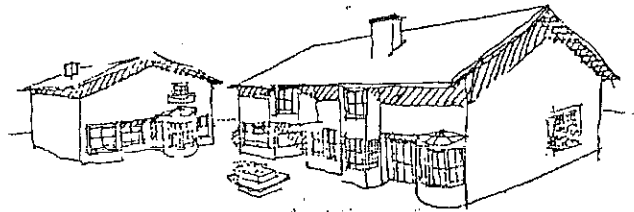


Figure 9

BALCONIES Balconies, like other wall appurtenances, should be simply designed. The use of long vertical or horizontal bands of balcony space is discouraged.

Balconies must be designed to prevent snow accumulation, interior leaks, and icicle build-up. They should be located so neither snow nor ice falling from them can endanger passersby. (Figure 10)

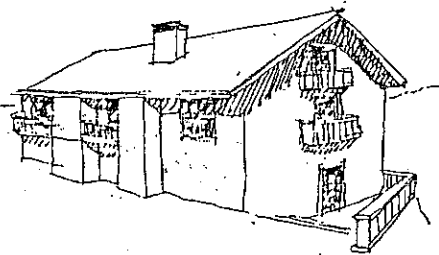


Figure 10

Acoustics: Prologue

Good acoustical performance is important in multi-family housing - especially at Deer Valley, where the emphasis is on a high level of livability, and where the lack of "background" noise and the general quiet of the surroundings makes the noise of neighbors all the more irritating and hard to ignore.

The following design guidelines are aimed at achieving a reasonable standard of acoustical performance given the nature of wood frame construction. In broad terms, the performance looked for is one in which the individual resident can expect to be shielded from all but the loudest noises of his neighbors, and protected from annoying sounds within his own unit, and within the building as a whole. It should be possible for the resident to think of his unit as "quiet," and for his neighbor to live his life without having to make special personal efforts to meet this standard. The typical sounds generated in daily life - televisions, radios, stereos, appliances, people walking about, conversations, and so forth - should be inaudible.

Some of the housing at Deer Valley will be designed to allow the possibility of lock-off bedrooms with separate entries. When this condition exists, particular emphasis must be placed on control and planning for acoustical privacy.

Building Layouts

It is far easier to put noisy machinery and other sources of high-level noise next to areas which are acoustically insensitive, rather than put them next to areas where they will have a major impact and then attempt to minimize the noise. While it is technically possible to overcome the problems of high-level noise in acoustically-sensitive areas, this is a timeconsuming and expensive process, easily avoided through good planning.

In multi-family housing, the main sources of high-level noise include elevator machinery rooms, elevator shafts, trash chutes, ventilating fans, air-conditioning condensers, and vibrating electrical devices, including transformers.

It is also easier to design multi-family housing so that similar spaces in different units are next to, above or below each other. The occasional noises penetrating from a neighbor's living room are likely to be more tolerable in one's living room than in one's bedroom, and are likely to be much less noticeable.

Where housing is provided with lock-off bedrooms, these should be planned to emphasize their acoustical privacy. Minimum STC value of walls separating such bedrooms from the occupied areas of the dwelling should be STC 60. Walls separating such bedrooms from corridors should have STC values of at least 50.

The weakest link in any lock-off bedroom arrangement is typically its entry. Planning of bedrooms within larger units should make use of vestibules or internal hallways to provide additional separation. In general, there should be at least two doors between the lock-off space and the main part of the dwelling. These doors should be sound-rated STC 40, or better.

Airborne Sound Control

The separations between dwelling units should have an STC rating of 60. This is very close to the maximum level of sound isolation that can be achieved with standard wood-frame construction. For a party wall to obtain this rating, it is generally necessary to use double stud construction on separate plates, fibrous insulation in the airspace, and one or two layers of gypsum board and/or plywood on each of the wall surfaces. For a floor or ceiling to have an STC 60 rating, it is typically necessary to attach the ceiling gypsum board (either one or two layers of 1/2 or 5/8" gypsum board) on resilient channels, install fibrous material in the joist space, and have a gypsum or concrete topping on the subflooring.

The acoustical ratings of various wall, floor and ceiling details can be obtained from literature published by the U.S. Gypsum Co., Owens-Corning, the Dept. of Housing and Urban Development and the Environmental Protection Agency. These ratings are established through laboratory tests; to duplicate them in actual construction, it is typically necessary to specify:

- + That the perimeter and penetration in gypsum board is sealed airtight with acoustical sealant;
- + That junction boxes are offset at least one stud space and sealed air-tight around the perimeter, back and sides;

- + That all recessed lighting fixtures are enclosed in an airtight gypsum board or plywood enclosure, consistent with the lighting manufacturer's requirements;
- + That resilient channels, if used, must be installed per manufacturer's instructions in terms of nails or screws used, their on-center spacing, and the allowable cantilevered distance for channels. Channels must not be allowed to touch intersecting structures directly.

Walls separating dwelling units from corridors and other public spaces should have a minimum STC rating of 50. For bedrooms adjoining lounges or corridors with anticipated high noise levels, this rating should be increased to 60.

Entry doors to dwelling units that open off of interior corridors or circulation spaces should be solid-core and completely sealed with acoustical gasketing.

Within the dwelling units themselves, it is important that there be good sound isolation between different spaces. Walls separating bedrooms from each other and from other spaces within the unit should have a minimum STC rating of 50. Lock-off bedroom units should have walls with a minimum STC rating of 60.

Impact Isolation

Few things are more annoying than hearing footsteps above you, especially if you are in an otherwise quiet bedroom or living room. Such noise is easily transmitted through rigid constructions like concrete slabs, or any other with hard-surfaced flooring - vinyl-asbestos tile, marble, hardwood, pavers, brick, etc. Carpeting will almost always control this kind of noise, as will cushion-backed vinyl floors.

Controlling "footfall noise" on hardsurfaced floors is difficult, and usually requires installing these floor surfaces on a layer of tongue-and-groove plywood installed over isolation pads or a dense glass fiber material. Information on floor and ceiling details which can control this type of noise can be obtained from the Ceramic Tile Institute.

The minimum Impact Isolation Class rating (IIC) for floors and ceilings above kitchens, hallways and bathrooms should be 50. The minimum IIC rating for floors above living and dining rooms should be 55. For bedrooms, 60.

Plumbing Noise

Plumbing noise is caused by water flowing through supply or drain piping. The flow vibrates the pipe wall, and if this vibrating pipe comes in contact with gypsum board or structural elements, the vibration can be transmitted directly, causing an audible and unpleasant sound. To minimize or eliminate water-flow noise, keep the water and supply piping from directly touching the structure.

This can be readily accomplished by using felt-sleeved isolators (e.g., "trisolators"). Felt or sponge rubber, a minimum 1/4" in thickness, can prevent vibration from being transmitted from the piping to the structure. Don't use rigid plastic pipe sleeves - they do not control vibration transfer.

To keep piping vibration from being transmitted to plates, sub-flooring and walls, make sure that any holes cut in them to allow pipes to pass through are at least 1/2" larger than the pipes themselves.

Another source of plumbing noise is excessive water speed within the pipes. Pipes should be sized so that flow rates do not exceed 7 ft. per second. Water pressure within the system should not exceed 50 psi.

Forced-Air Heating and Cooling Systems

A noisy forced-air heating and cooling system can be very difficult and expensive to correct. Excessive noise can come from the fan itself, from air turbulence within the ductwork, or from air flowing through the termination devices. Duct-borne noise can be controlled by selecting quiet fans, limiting air speeds to no more than 600 ft. per minute in the ductwork, and no more than 400 ft. per minute within 10 ft. of termination, and by choosing grilles with sound power levels at the rated air flow which do not exceed the acoustical performance requirements for the space in question.

The sound levels generated by forced-air systems should not exceed Noise Criteria ratings (NC) of 25 in bedrooms, 30 in living and dining rooms, and 35 in kitchens and bathrooms. Forced-air systems should be continuous; thermostatically-controlled on/off systems should not be used.

Where fans, air pumps and compressors must be located near bedrooms and other acoustically sensitive spaces, it is typically necessary to:

- + Provide a solid core door to the equipment room;
- + Provide separation walls with a good acoustical rating;
- + Put acoustical gasketing around the door;
- + Add sound-absorbing material on the surfaces of the equipment room to minimize reverberation and sound transfer to adjoining rooms.

Appliance Noise

Appliances are often overlooked as a source of acoustical problems within multi-family housing, but their noise can be bothersome to neighbors and a cause of annoyance within the dwelling unit itself.

Selection of appliances can help minimize the acoustical problem. Some brands of garbage disposals, for example, now come jacketed in sound-absorbing material to control casing-radiated noise, and use flexible hose for sink and drain connections, to control sound transference to the pipes.

Installation procedures can also help mitigate the problem. Refrigerators, dishwashers and washer/dryers should be installed on 1/4" thick ribbed or waffled neoprene pads (40 durometer rating loaded to 50 psi) - this will help control structural vibration and sound transfer. Applying damping compound (e.g., Soundcote, Peabody Kinetics) will minimize the resonance of fiberglass and sheet metal sinks, tubs and shower units. Damping compound can also be applied to the back and sides of dishwashers for the same purpose. Fibrous batts, placed next to and under shower enclosures, tubs and the sides, back and top of dishwashers, function similarly. Most importantly, do not allow the refrigerator, dishwasher, washer/dryer, etc., to touch cabinets or wall surfaces directly - particularly if these are party walls.

Trash Chutes

Whenever possible, locate trash chutes away from acoustically sensitive areas. If they must be placed near dwelling units, the following steps should be followed.

- + Damping compound should be applied to all the surfaces of the trash chute;
- + They should be kept from touching structural elements, gypsum board, etc.;
- + They should be vibration-isolated from the building structure with fiberglass pads;
- + Fibrous batts and sound isolation construction should be used to control air-borne noise within the chute.

Acoustical Environment in Corridors and Public Places

Corridors, lounges and public areas surfaced with sound-reflecting materials may reverberate, and become a source of annoyance for the residents of dwelling units opening onto these public spaces. Reverberation can be controlled and sound build-up minimized by using sound-absorbing materials on 50% of the corridor surfaces. Carpeting floors in corridors provides sound absorption and also eliminates footfall noise. It is

usually cheaper to add sound absorbing material to ceilings than to walls, since ceilings are less prone to damage and can be made of lighter materials. If sound absorbing wall surfaces are needed, use rugged materials like shredded wood fiberboard with a cement binder. An alternative is to protect lighter sound-absorbing material with perforated pegboard, wood or metal slats, or jute-backed carpeting.

Construction

In general, the most scrupulous attention to design detail for acoustical performance can be completely negated by sloppy construction. The builder is a critical factor in achieving the good sound performance sought for Deer Valley. So, in turn, are the builder's subcontractors and their various employees.

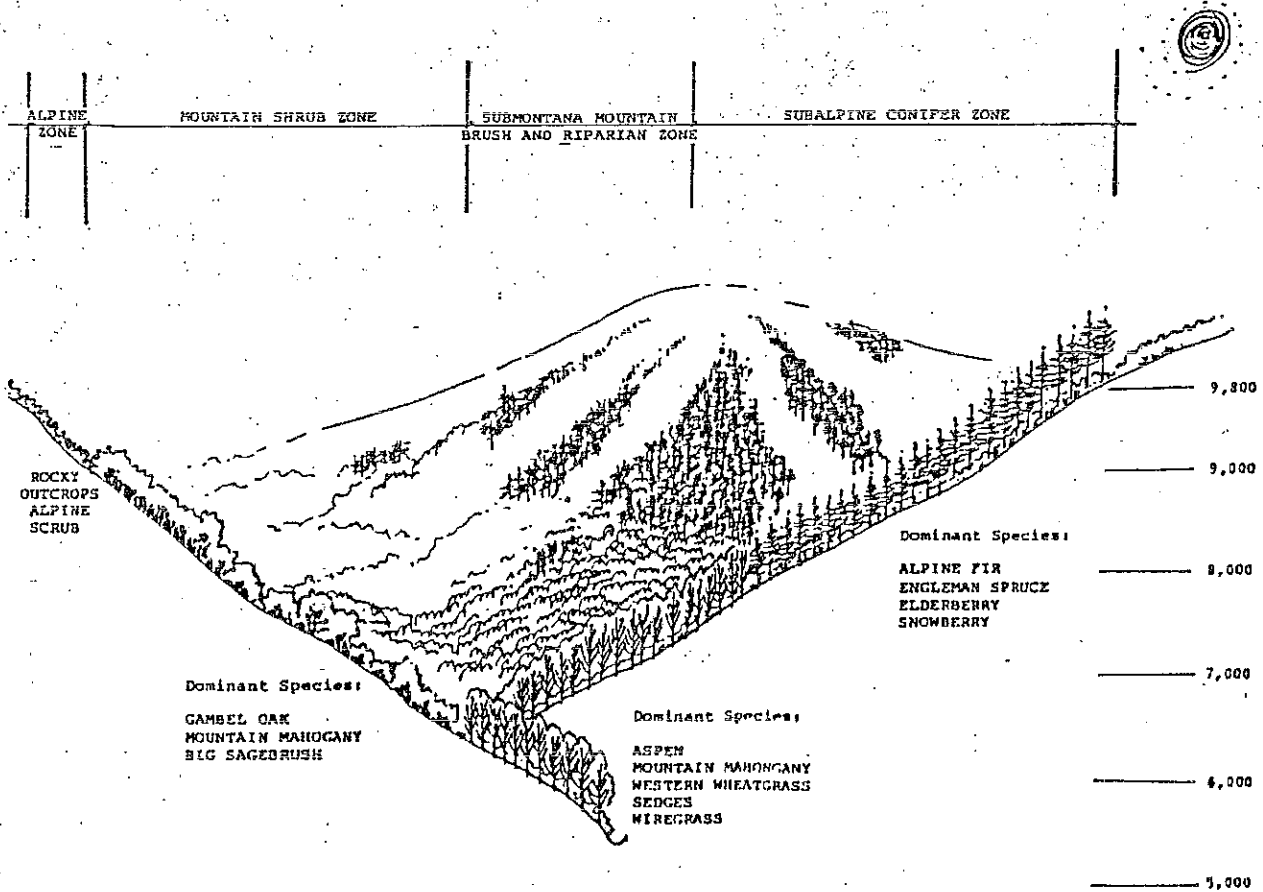
The best test of proper installation of plumbing, mechanical systems, resilient channels and appliances is visual observation. Visual observation of whether wall board has been installed with an airtight seal is difficult, and in this case the best assurance that design standards are being followed is to do acoustical sound isolation tests of completed walls, floors and ceilings. These tests determine the overall sound isolation rating of the building elements in question, and make it possible to pinpoint sound leaks due to inadequate caulking.

Such tests, typically conducted by acoustical engineers, involve generating a high-level, steady, broad-frequency sound (white noise) in one room, and comparing measurements of the sound taken there and in adjoining rooms or spaces. The difference between the two sound levels represents the degree of noise reduction afforded by the separating wall or ceiling. Floor/ceiling tests also typically involve the use of a tapping machine to simulate footfall noise.

General Site Character

The natural landscape at Deer Valley is one of its most important amenities. People come here because Deer Valley is not urban or suburban - it is rural and unspoiled. Its development must not destroy this quality. One has only to think of the mountains of Switzerland, and the mountain villages that have existed there for centuries, to understand that people and nature can co-exist successfully, provided people exercise sufficient care in their activities.

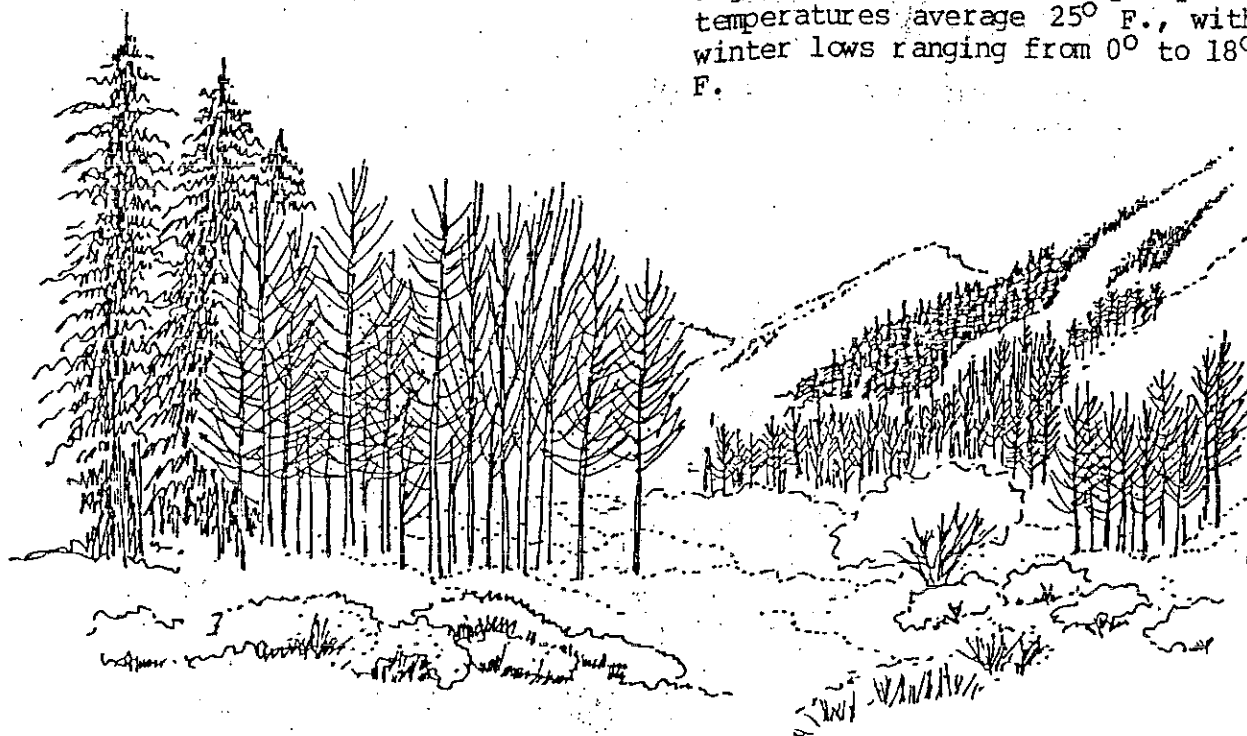
These guidelines ask that you design the houses and other structures you wish to build here, so that they fit their sites, relate well to their neighbors, and are part of the fabric of the Valley. Then look beyond the building itself, and consider how your site fits into the natural landscape of the valley, and how its development can have the least possible impact on this landscape.



VEGETATION The distribution of vegetation types in the project area is limited chiefly by the annual precipitation and moisture content of the soil. These factors are a function of elevation, slope steepness, aspect or sun exposure, wind, vegetative cover, and the nature of the underlying material. There are four distinct natural plant community zones occurring within the site, with a variety of plant material occurring within most zones. The four zones are: (1) Subalpine Conifer Zone; (2) Mountain Shrub Zone; (3) Alpine Zone; and (4) Submontana Mountain Brush and Riparian Zone.

TOPOGRAPHY The Deer Valley Resort project consists of approximately 3,730 acres of land located in and adjacent to Park City, Summit County and Wasatch County, Utah. The topography of the site ranges from Deer Valley meadow at 7,125 feet and rises westward and southwestward up to the summit of Bald Mountain at 9,300 feet. Slopes range up to 60%, with the majority of the site located on mountainsides with 40% - 60% slopes.

CLIMATE The climate of the project is influenced by its proximity to the crest of the Wasatch Mountains. The area is classified semi-arid continental and receives between 20 and 30 inches of precipitation annually. The predominant precipitation occurs as snow, with approximately 150 inches falling each year. Summer temperatures are moderate, with highs approaching 70° to 75° F. January daytime temperatures average 25° F., with winter lows ranging from 0° to 18° F.



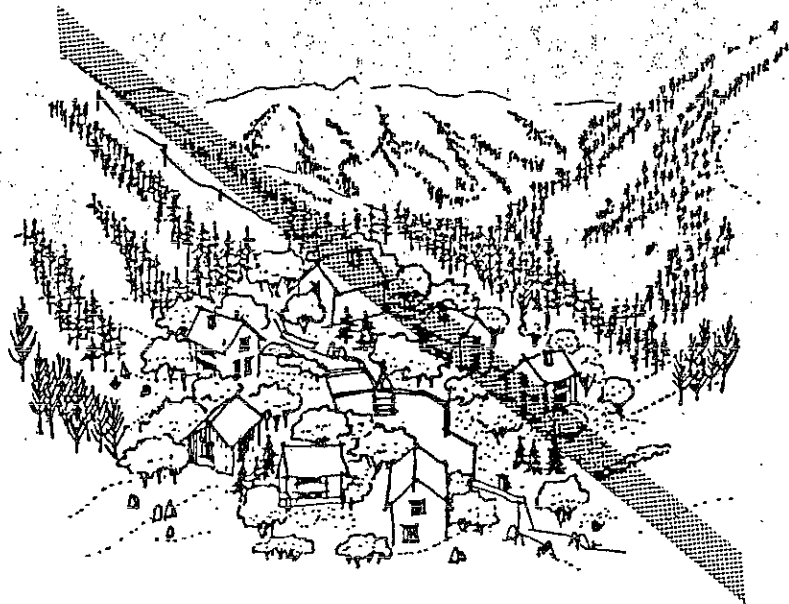
Revegetation

While every new development in Deer Valley should seek to minimize the impact of construction on the existing landscape, some disruption is probably inevitable. Correcting any damage done in the development process will require revegetation; and this should, to the greatest extent possible, re-

create the earlier character of the site, using indigenous plants and trees that are native to the area. New plantings should blend in with the existing landscape, so that several years hence, all traces of the disruption will have disappeared.



YES: New planting blends with existing landscape.



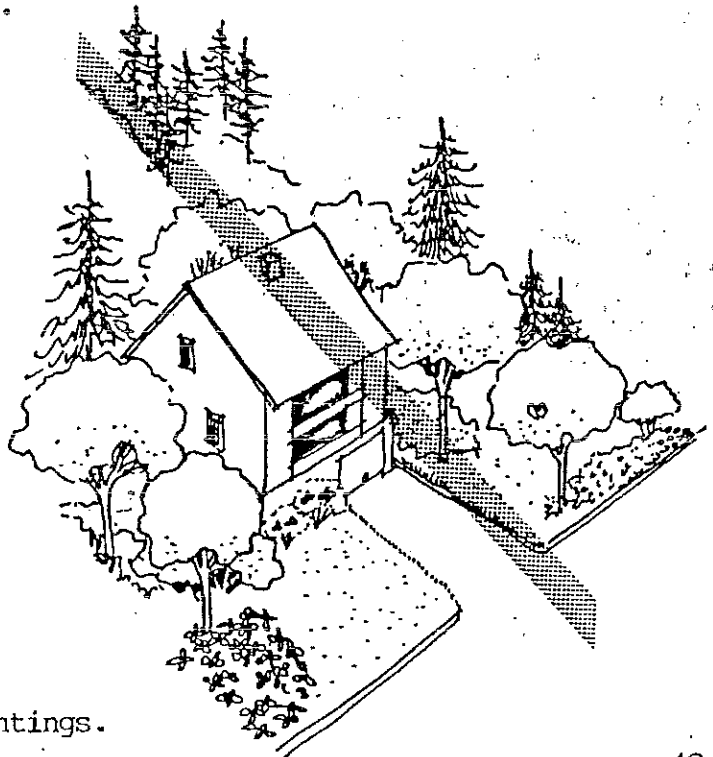
NO: New planting different from existing landscape.

Species which are native to the Deer Valley are described in Table 1. In preparing a planting plan, it may be necessary to demonstrate that the species to be used are specifically appropriate to the site in question. Preparation of such plans should take into account the seasonal diversity, wild-

life support and fuel management characteristics of the plants to be used. The use of ornamental plants is restricted to areas with limited public visibility (i.e., enclosed courtyards). The use of turf is permissible, but its excessive use will require review by the Design Review Committee.



YES: Native plantings.

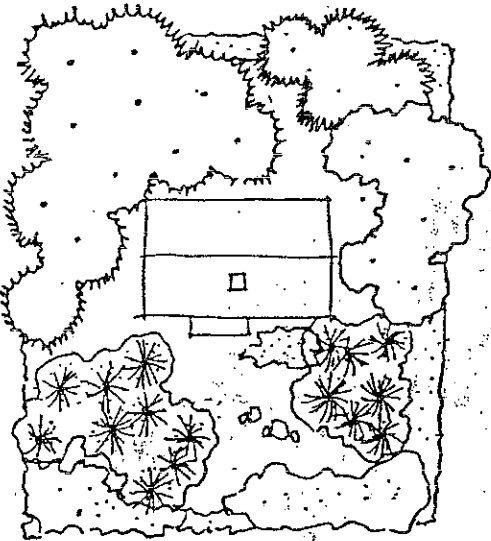


NO: Ornamental plantings.

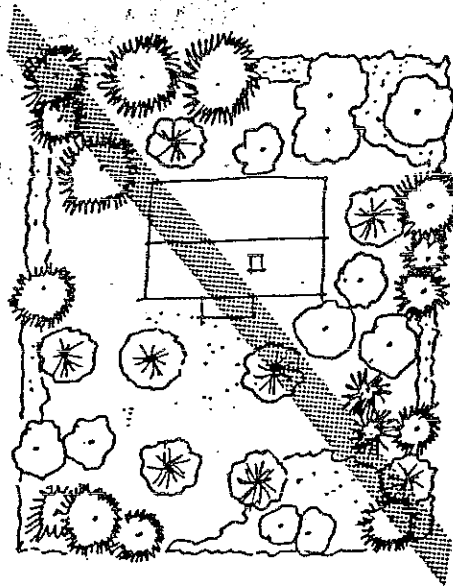
Massing

New plant materials should be located in a way that respects existing planting patterns. Trees, shrubs and ground cover are usually found in groups of similar species, rather than alone or together with a number of other species. New planting should follow the patterns characteristic of the site and its environs, and should as much as possible harmonize with them.

YES:



NO:

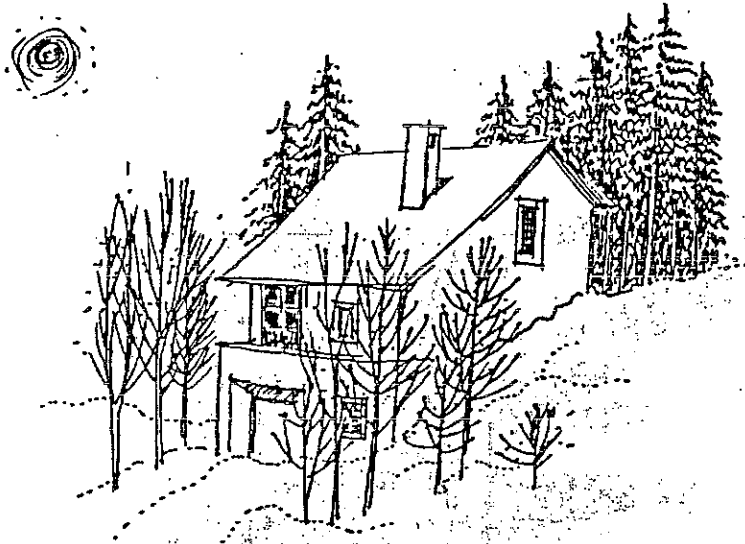


Solar Orientation and Preservation of View Corridors

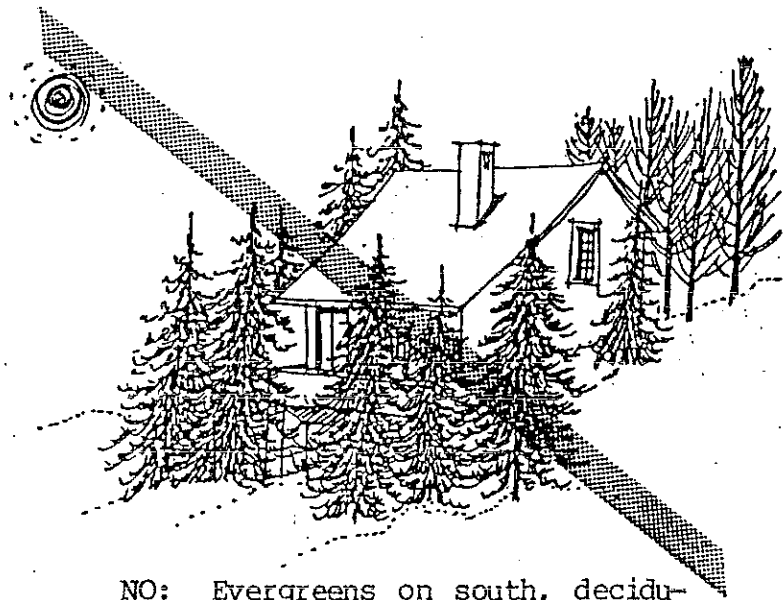
It is critical that new planting take the sun and the views of others into account, so that existing patterns of sunlight and existing view corridors are not obscured by new planting.

As a general rule, evergreens should be placed on the north and

east sides of sites, and deciduous trees on the south and west, to preserve existing sunlight patterns. The impact of planting on adjoining sites should also be assessed. New planting that proves to interfere with other people's solar access or views may be subject to removal.



YES: Deciduous on south, evergreens on north.

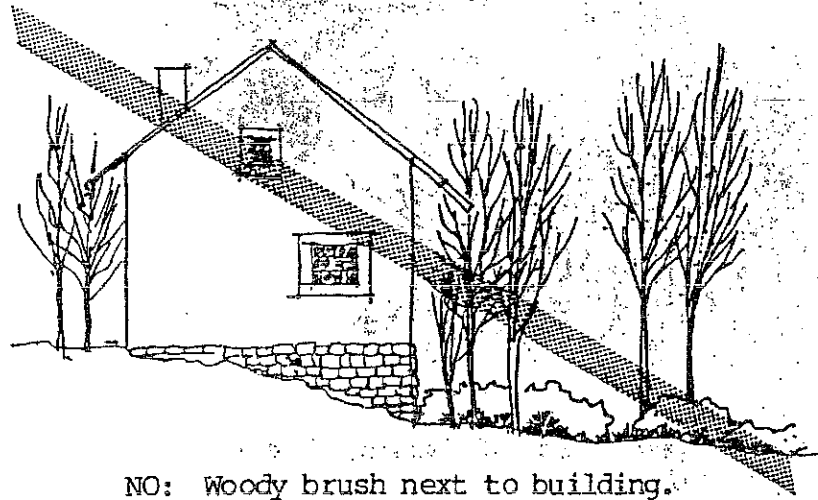


NO: Evergreens on south, deciduous on north.

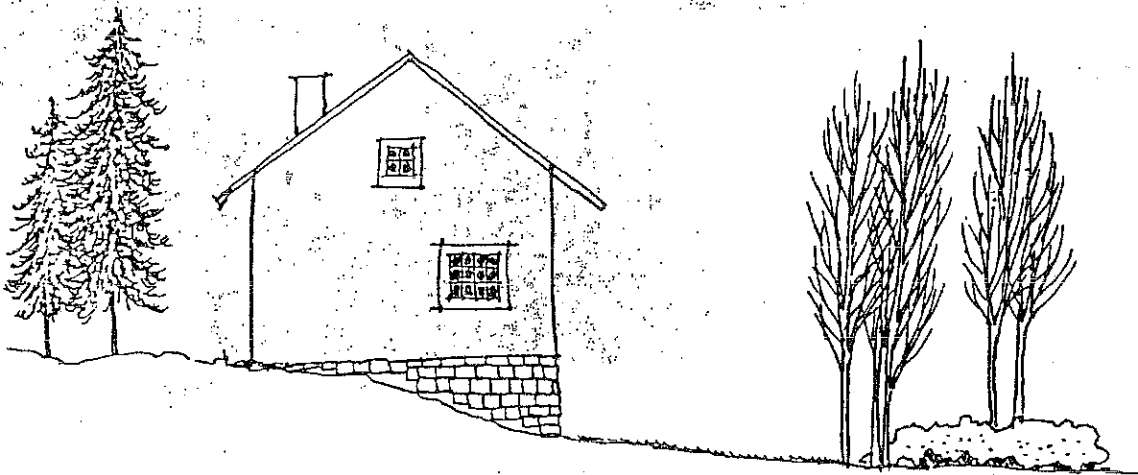
Wildfire Management

The Deer Valley area contains three predominant fuel types: oak/sage, aspen, and conifer. The highest fire potential occurs when these fuel types are combined with a dense understory.

In order to lower the fire hazard around buildings, no woody shrubs should be planted in combination with aspens, conifers, or other trees next to buildings or under roof overhangs.



NO: Woody brush next to building.



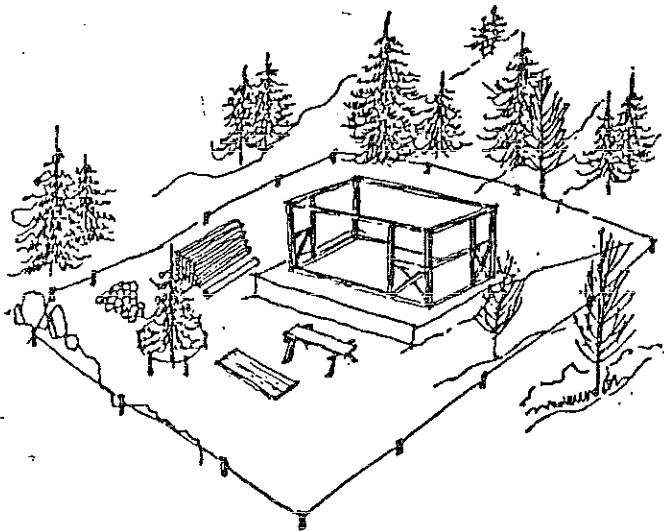
YES: Wood brush held away from building.

Irrigation

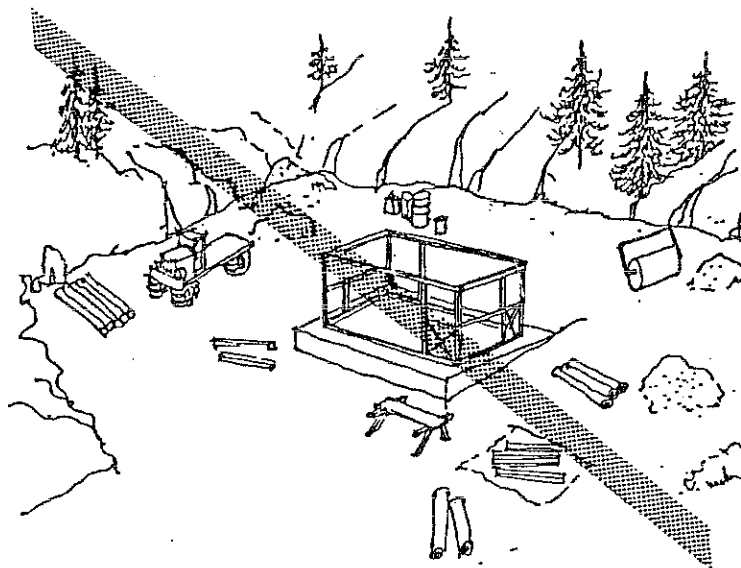
Deer Valley should have the least possible impact on available water resources. - water is a potentially scarce resource here, and should not be used in a wasteful manner. Continuous irrigation in the dry months is to be discouraged, and the choice of planting materials should make it possible, once the planting is established, for such irrigation to be unnecessary.

Grading

To preserve existing land forms and site vegetation, grading plans for new development must be sensitive to the natural massing and features of the area. Grading and construction practices which disturb these natural features promote erosion and extensive revegetation. More importantly, they work against a basic goal for development: that the natural setting which makes Deer Valley so special be preserved.



YES: Construction limits established.



NO: No construction limits.

Buildings and roads must be fitted carefully to their sites. Every effort should be made to minimize grading and excavation, and to contain construction within fixed limits (this includes car and truck parking, material storage, etc.).

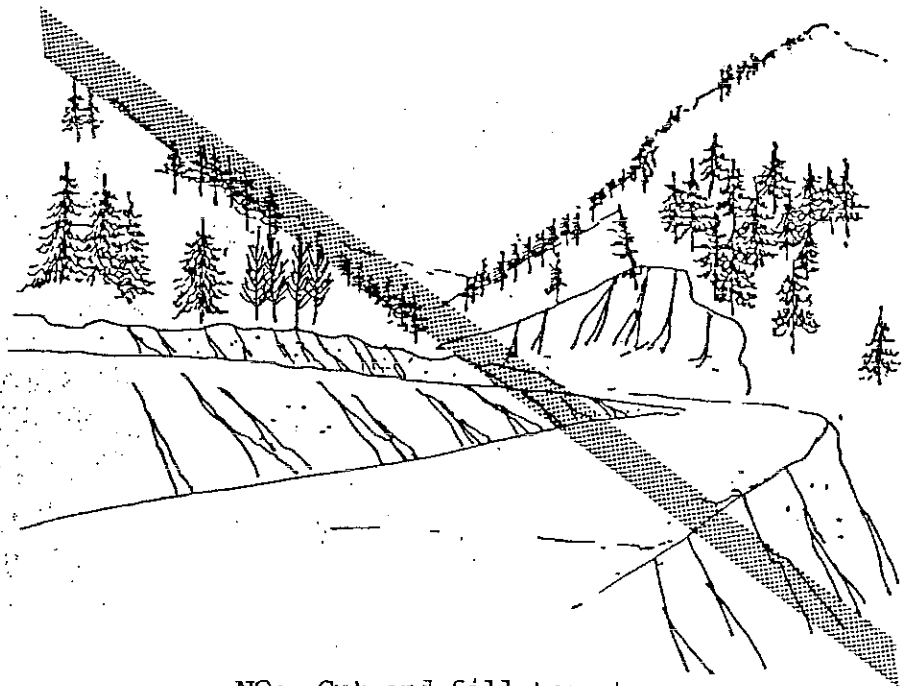
Measures which should be taken include:

- + specify construction limits and confine all stockpiling, equipment, traffic and parking within them.

+ make cuts and fills, when required, conform to good engineering practice, with naturally rounded tops and toes of slopes;

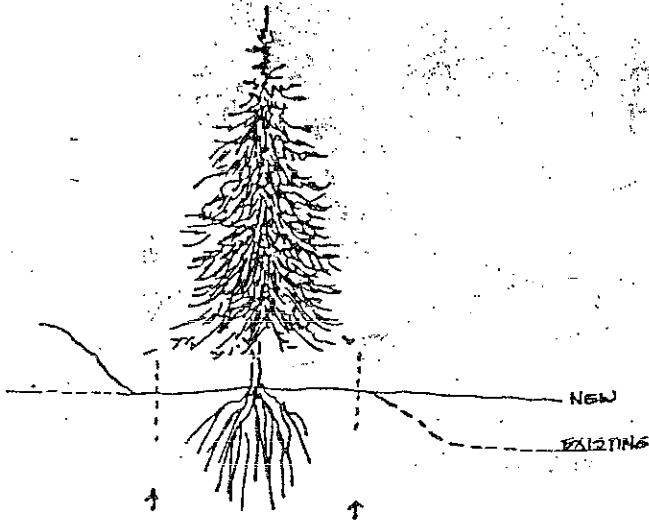


YES: Cut and fill conforms with natural topography.

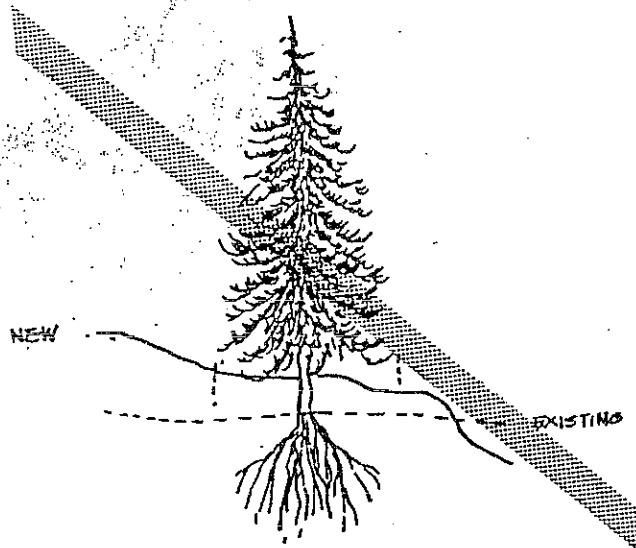


NO: Cut and fill too steep.

- + protect existing trees designated for preservation from all injury, including grade changes within the tree's drip line.



YES: Grade changes outside of tree's drip line.

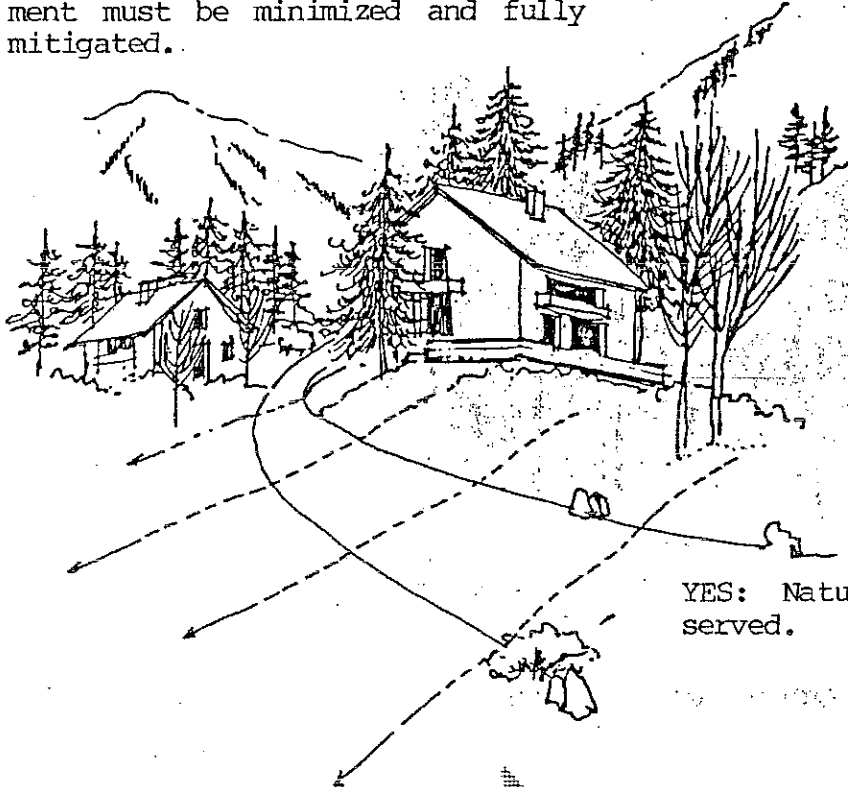


NO: Grade changes within tree's drip line.

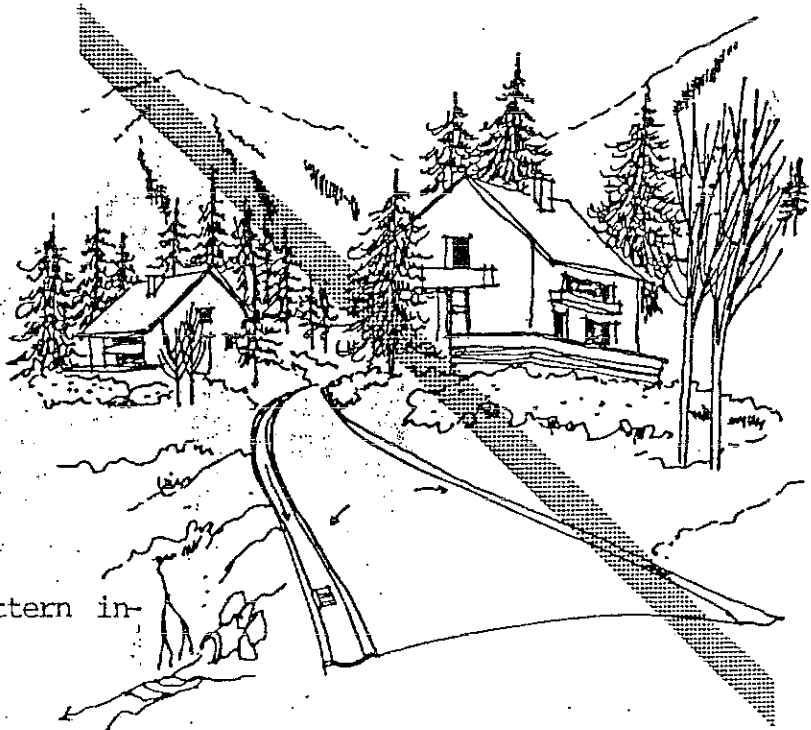
Drainage

Each site has its particular natural drainage pattern, the result of its topography and vegetation. Whenever possible, this surface drainage pattern should be preserved. Negative drainage impacts on other sites affected by development must be minimized and fully mitigated.

Surface systems (swales, culverts, retention basins) are preferable to closed underground systems. Where closed underground systems must be used, release points must be designed to preclude erosion.



YES: Natural drainage pattern preserved.



NO: Natural drainage pattern interrupted.

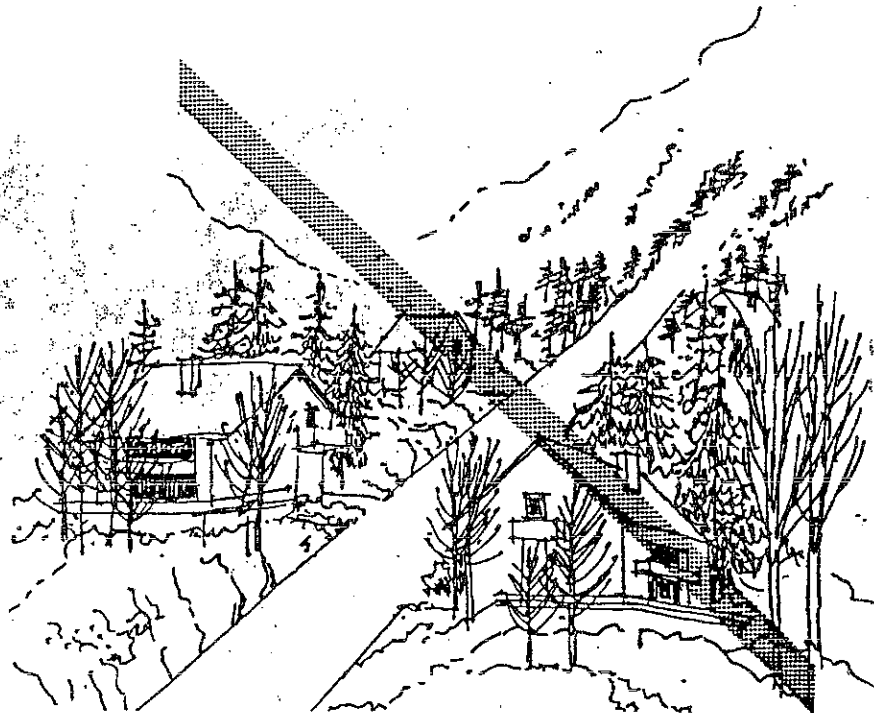
Paving: Roads, Paths and Other Surfaces

All paved surfaces at Deer Valley should have a scale and character that is suitable to the character of the place, responding to climate, terrain, and the palette of natural materials and colors. Paved surfaces should only be used

where an unpaved surface is functionally unsuitable. Where paved surfaces are used, the choice of materials and the alignment of the path or road should be based on both aesthetic and functional considerations.



YES: Road alignment follows topography.

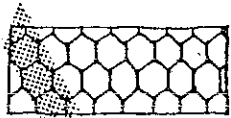


NO: Road alignment works against topography.

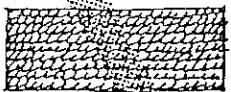
Acceptable paving materials include: asphalt, decomposed granite, on-site stone, wood, concrete, and brick. Unacceptable materials include: ceramic tile, surface applied aggregate coatings, astro-turf, and concrete block.

Combinations of paving materials can lend visual interest, but too elaborate patterns begin to compete with the larger setting. Designs should be simple and straightforward, using one or two different materials.

NO



CERAMIC TILE



ASTRO-TURF



CONCRETE BLOCK

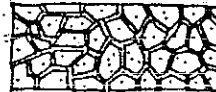
YES



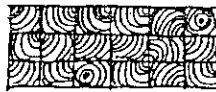
ASPHALT



DECOMPOSED GRANITE



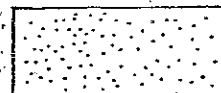
ON-SITE STONE



WOOD



WOOD



CONCRETE



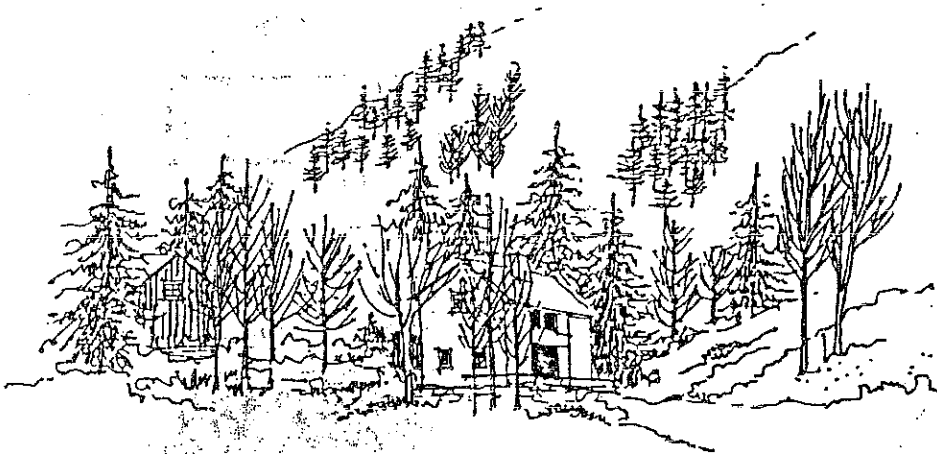
BRICK

Walls and Fences

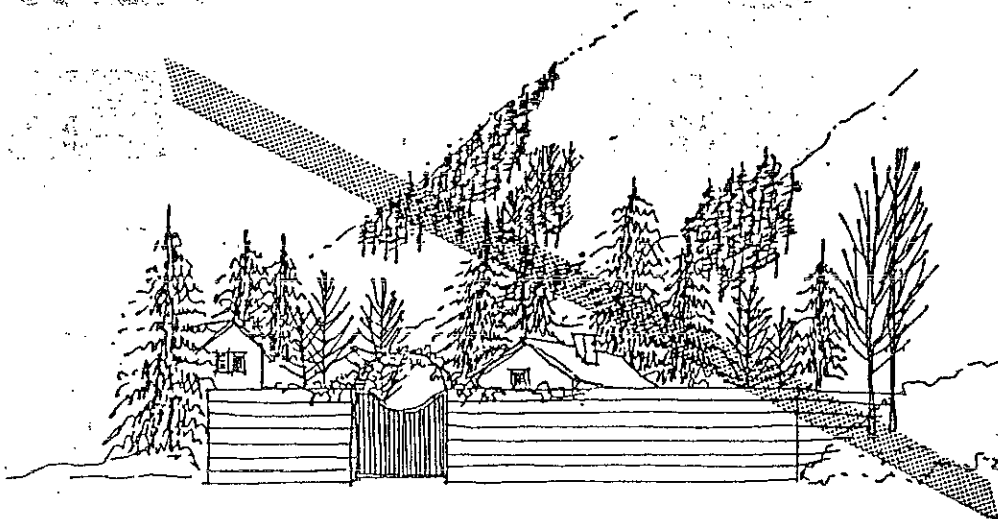
Walls and fences have two acceptable uses at Deer Valley:

- + as property delineators and retaining walls;
- + to provide privacy or service area screening.

The placement of walls and fences should respect existing land forms, follow existing contours, and fit into existing land massing, rather than arbitrarily following site boundary lines (in subdividing, therefore, attention should be paid to establishing boundaries on this basis). The design of fences and walls should ensure that these elements harmonize with the site and the buildings on it - in scale, as well as in appearance.



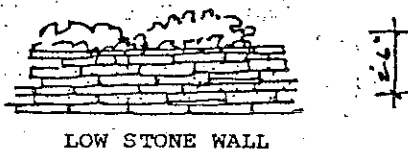
YES: No fencing or walls



NO: Tall opaque fencing on site boundary lines.

Walls built adjacent to buildings should be designed in conformance with guidelines for Protected Lower Walls (40). Walls that are separated from buildings should not exceed six feet in height, and may be built in loose or mortared on-site stone or stone-faced concrete. Unacceptable materials include concrete, concrete block, wood and brick.

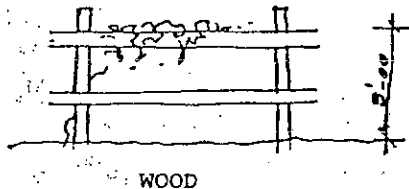
YES:



LOW STONE WALL

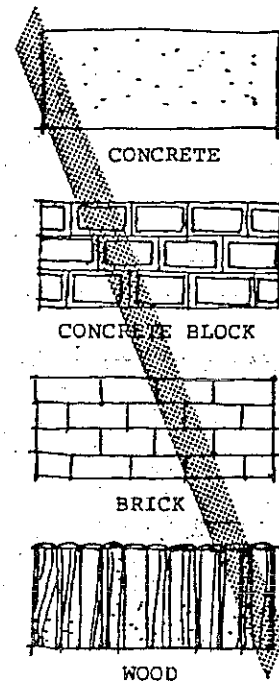
Fencing that is not attached to buildings should be low and unobtrusive, and built of wood. Fencing attached to buildings and used for privacy or screening of service areas may be tall and opaque, but should be made of wood and designed to fit well with the character of the building. Unacceptable fencing materials include chain link, plywood, painted materials, and picket fencing.

YES:

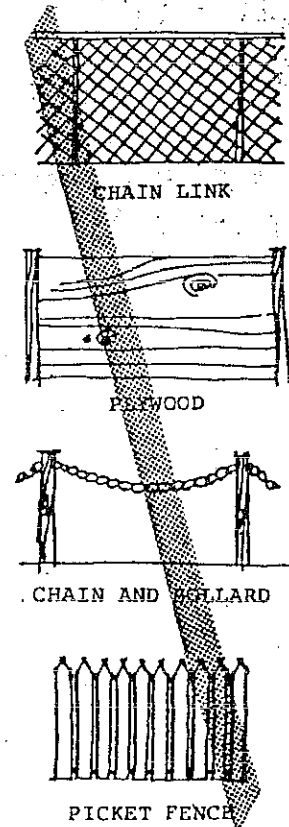


WOOD

NO:



NO:

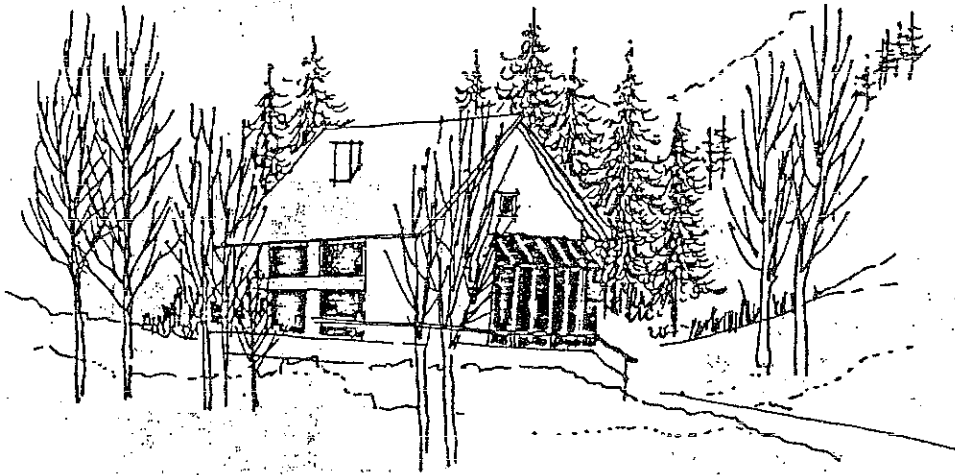


Landscape Structures

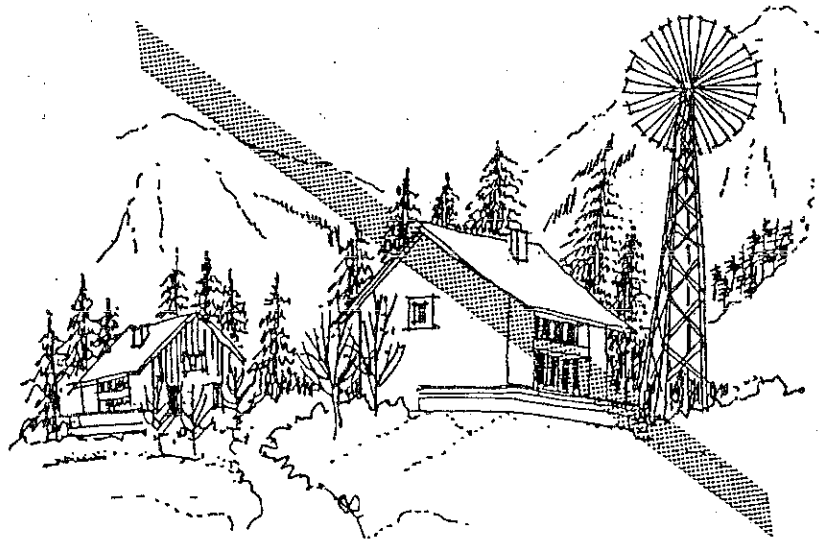
Landscaping often includes outdoor structures (decks, trellises, gazebos, pergolas, greenhouses, play equipment). These structures frequently detract from the overall appearance of the landscape by adding an element of visual disorder. They should be designed to work as extensions of buildings, rather than as separate elements. Freestanding elements should be avoided, unless there is a compelling reason to have them. In both cases, every effort must be made to give the site as a whole a common

character, appropriate to the Deer Valley setting. Outdoor structures will be judged on this basis.

Decks and trellises should be built of wood and left unpainted. Greenhouses should be simple and straightforward in design, and may not be freestanding structures. All outdoor structures should avoid gimmickry and excessive ornamentation.



YES: Structure as building extension



NO: Freestanding structures

Site Furnishings

Signage, graphics, street lighting, snow poles and guard rails are subject to review by the Design Review Committee.



Appendix

Trees, Shrubs, Wildflowers/Forbs, and Grasses Common to the Deer Valley Resort Area

T R E E S (Common Name)

White Fir <i>Abies concolor</i>	Mountain Mahogany <i>Cercocarpus montanus</i>	Chokecherry <i>Prunus virginiana</i>
Rocky Mountain Maple <i>Acer glabrum</i>	Utah Juniper <i>Juniperus osteosperma</i>	Gamble Oak <i>Quercus gambelii</i>
Bigtooth Maple <i>Acer grandidentatum</i>	Western Red Cedar <i>Juniperus scopulorum</i>	Dwarf Mountain Ash <i>Sorbus scopulina</i>
Thinleaf Alder <i>Alnus tenuifolia</i>	Narrowleaf Cottonwood <i>Populus angustifolia</i>	Subalpine Fir <i>Abies lasiocarpa</i>
Utah Serviceberry <i>Amelanchier utahensis</i>	Quaking Aspen <i>Populus tremuloides</i>	Cliffrose <i>Cowania mexicana</i>
River Birch <i>Betula occidentalis</i>	Douglas Fir <i>Pseudotsuga menziesii</i>	

S H R U B S (Common Name)

Serviceberry <i>Amelanchier alnifolia</i>	Blueberry Elder <i>Sambucus glauca</i>	Bitterbrush <i>Purshia tridentata</i>
Dwarf Sagebrush <i>Artemisia arbuscula</i>	Elderberry <i>Sambucus racemosa</i>	Smooth Sumac <i>Rhus glabra</i>
Hoary Sagebrush <i>Artemisia cana</i>	Kinnikinnick <i>Arctostaphylos uva-ursi</i>	Skunkbrush <i>Rhus trilobata</i>
Creeping Oregon Grape <i>Mahonia repens</i>	Snowbush <i>Ceanothus relutinus</i>	Golden Currant <i>Ribes aureum</i>
Snowberry <i>Symphoricarpes albus</i>	Squawcarpet <i>Ceanothus prostratus</i>	Gooseberry <i>Ribes alpinum</i>
Dwarf Mountain Mahogany <i>Cercocarpus intricatus</i>	Dwarf Mountain Lover <i>Pachistima canbyi</i>	Wild Rose <i>Rosa woodsii</i>
Redosier Dogwood <i>Cornus stolonifera</i>	Mountain Lover <i>Pachistima myrsinites</i>	Wild Raspberry <i>Rubus idaeus</i>
Rabbitbrush <i>Crysothemnus neuseosus</i>	Bush Rock Spiraea <i>Holodiscus dumosus</i>	Willows <i>Salix spp.</i>
Prickly Gilia <i>Leptodactylon watsonii</i>	Tufted Rockmat <i>Petrophytum caespitosum</i>	Shrubby Cinquefoil <i>Potentilla fruticosa</i>
Twinberry <i>Lonicera involucrata</i>	Big Sagebrush <i>Artemisia tridentata</i>	

W I L D F L O W E R S / F O R B S (Common Name)

Yarrow Archillea	Fleabane Daisy Erigeron	Catnip Nepeta
Horsemint Agastache	Wild Buckwheat Eriogonum microthecum	Penstemons Penstemon
Mountain Dandelion Taraxacum	Dog-tooth Violet Erythronium	Wild Phlox Phlox
Wild Onion Allium	Wild Strawberry Fragaria vesca	Plantain Plantago purshii
Ragweed	Showy Gentian Fraseria	Western Coneflower Rudbeckia occidentalis
Columbine Aquilegia	Wild Geranium Geranium viscosissimum	Indian Tobacco Rumex crispus
Heartleaf Arnica	Scarlet Gilia Gilia	Mountain Buttercup Ranunculus
Burdock	Gum Plant Grindelia	Stonecrop Sedum debile
Milkweed Asclepias	Sunflower Helianthus	Groundsel Senecio integerimus
Asters Aster	Wild Hyacinth	Meadow Rue Thalictrum fendleri
Balsamroot Balsamorhiza macrophylla	Cow Parsnip Heracleum	Stinging Nettles Urtica dioica
Bird Rape Brassica rapa	St. John's Wort	Mullein Verbascum
Indian Paint Brush Catstillejo	Wild Carrot Lomatium	Vetch Vicia americana
Hound's Tongue Cynoglossum officinale	Lupine Lupinus	Goldeneye Viguiera multiflora
Pink Bee Flower Cleome serrulata	Yellow Sweet Clover Trifolium	American Hops Humulus americanus
Larkspur Delphinium	Shortstyle Bluebells Mertensia	Blue Violet Viola
Teasel Dipsacus	Mountain Bluebells Mertensia	Yellow Mountain Violet Viola
Fireweed Epilobium	Watercress Nasturtium	

Mules Ears Wyethia amplexi caulis	Sego Lily Calochortus	Blazing Star Mentzelia lindleyi
Bracken Fern Pteridium aquilinum	Camas Camassia	Bachelor Button Centaurea cyanus
Maidenhair Fern	Wild Iris	Painted Daisy Chrysanthemum cyanus
Western Clematis Clematis ligusticifolia	Perennial Sweet Pea Lathyrus latifolius	Ox-eye Daisy Chrysanthemum leucanthemum
Sulphur Flower Buckwheat Eriogonum umbellatum	Blue Flax Linum	Iceland Poppy Papaver nudicaule

GRASSES (Common Name)

Western Wheatgrass Agropyron smithii	Fescue Festuca	Redtop Agrostis alba
Crested Wheatgrass Agropyron cristatum	Spike Fescue Leucopoa kingii	Sedge
Smooth Brome Bromus inermis	Barley Hordeum brachyantherum	Needlegrass Stipa columbiana
Mountain Brome Bromus carinatus	Foxtail Alopecurus pratensis	Orchardgrass Dactylis glomerata
Basin Wildrye Elymus cinereus	Witchgrass	Wild Bluegrass Poa secunda
		Big Bluegrass Poa ampla

