Appendix C:
Solar Access and Solar Easements:
Recent Reports and Example Ordinances

Solar Access and Solar Easements

Appendix C includes the reports that were reviewed for the Best Management Practice (BMP) review task as well as some additional research. In addition, example ordinances, case studies, and excerpts are included. The purpose of this appendix if to pull the latest information available into one place for further evaluation for in implementing easements to further increase confidence and use in solar energy investments.

Contents

Attachment 1

A Comprehensive Review of Solar Access Law in the United States (includes model ordinances)

A Comprehensive Review of Solar Access Law in the United States

Suggested Standards for a Model Statue and Ordinance

Prepared by

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Florida Solar Energy Research and Education

Solar America Board for Codes and Standards

www.solarabcs.org

Solar America Board for Codes and Standards Report

A Comprehensive Review of Solar Access Law in the United States

Suggested Standards for a Model Statute and Ordinance

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Colleen McCann Kettles
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October 2008

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Download a copy of the report:

www.solarabcs.org/solaraccess

Executive Summary

Solar energy systems require direct access to sunlight to operate efficiently. The installation of a solar energy system on a new or existing building requires exterior modifications that are subject to building codes and private regulation. This report reviews the ability of existing law and regulation to protect solar access and recommends specific measures to improve solar access.

The solar access issue will be separated into two distinct areas: solar easements and solar rights. “Solar easements” refers to the ability of one property to continue to receive sunlight across property lines without obstruction from another’s property (buildings, foliage, or other impediment). “Solar rights” refers to the ability to install solar energy systems on residential and commercial property that is subject to private restrictions, i.e., covenants, conditions, restrictions, bylaws, condominium declarations, as well as local government ordinances and building codes.

The United States has held that there is no common-law right to sunlight. This has required that specific statutory authority be established to protect the rights of solar users in terms of both their ability to install a solar energy system on their property and after that system is installed to protect their access to sunlight, so that the system remains operational.

Land use planning, authority for solar easements, and prohibiting covenants, conditions, and restrictions that impede the use of solar have all been employed to protect solar access with varying degrees of success. This report reviews traditional legal mechanisms that govern the operation of public and private governments, as well as solar specific ordinances and statutes that have evolved over the years. It concludes that most current law has been ineffective or too expensive because of the lack of enforcement mechanisms.

The recommended elements of a comprehensive approach to protecting solar access are outlined, and a model solar statute has been developed based upon the best practices found across the United States. The model statute is intended to serve initially as a *straw man* for discussion among stakeholders and will be revised to reflect feedback based upon their needs. The statutory references that constitute the best practices are provided in the appendix to facilitate discussion and feedback from stakeholders.

Author Biography

Colleen Kettles is the Executive Director of the Florida Solar Energy Research and Education Foundation. She formerly served as the Associate General Counsel and Director of Institutional Affairs for the Florida Solar Energy Center. Colleen has 30 years of legal and policy research, program development, and implementation in the field of solar energy and energy efficiency. Colleen has also served as a contractor to the Florida Energy Office, Florida Solar Energy Center, National Renewable Energy Laboratory, and Department of Energy. She has provided policy analysis for issues before the Florida Public Service Commission and committees of the Florida Legislature on matters related to solar energy. She has published and presented numerous papers on the range of issues dealing with solar energy and energy efficiency policy. Colleen is a graduate of the University of Florida College of Law and is a member of the Florida Bar and the American Bar Association. She serves on the board of directors of the Florida Solar Energy Industries Association and the Florida Renewable Energy Association, and was a founding director of the Florida Green Building Coalition.

Florida Solar Energy Research and Education Foundation Web site:
www.flaseref.org

Solar America Board for Codes and Standards

The Solar America Board for Codes and Standards (Solar ABCs) is a collaborative effort among experts to formally gather and prioritize input from the broad spectrum of solar photovoltaic stakeholders including policy makers, manufacturers, installers, and consumers resulting in coordinated recommendations to codes and standards making bodies for existing and new solar technologies. The U.S. Department of Energy funds Solar ABCs as part of its commitment to facilitate wide-spread adoption of safe, reliable, and cost-effective solar technologies.

For more information, visit the Solar ABCs Web site:
www.solarabcs.org

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Introduction

Solar energy systems, whether thermal or photovoltaic, require direct access to sunlight to operate efficiently. The installation of a solar energy system on a new or existing building requires exterior modifications that are subject to building codes and private regulation. As our energy policies shift to advancing solar energy as a significant source of our energy portfolio, the conventional view of building codes and restrictive covenants must yield to guaranteeing access to sunlight to the fullest extent possible.

This report is divided into several sections. The first reviews common law and conventional statutes that might serve to protect solar access. The second reviews modern day efforts to afford access to sunlight through solar easements and solar rights. Finally, in developing a model solar access statute, we identify the best practices employed by state and local government and provide a recommended model. The appendix provides the full text of the statutes that were used in developing the model, and can be referred to in the event that more detail is desired in the model statute adopted for implementation.

Solar Access

The solar access issue is generally thought to involve the potential shading of solar collectors by neighboring structures or vegetation. There is, however, another aspect to the solar access issue: public and private restrictions on the use of property, including restrictive covenants in deeds, condominium and homeowner association bylaws, architectural controls, and local government ordinances.

For discussion purposes, the issue of solar access in this report is separated into two clearly defined areas: solar easements and solar rights. "Solar easements" refers to the ability of one property to continue to receive sunlight across property lines without obstruction from another's property (buildings, foliage, or other impediment). "Solar rights" refers to the ability to install solar energy systems on residential and commercial property that is subject to private restrictions, i.e., covenants, conditions, restrictions, bylaws, condominium declarations, as well as local government ordinances and building codes.

Historical Perspective

The Doctrine of Ancient Lights

"Ancient Lights" is a doctrine based on English law that refers to a negative easement that prevents the owner or occupier of an adjoining structure from building or placing on his own land anything that has the effect of obstructing the light of the dominant tenement. In common law, a person who opened a window in his house had a natural right to receive the flow of light that passed through it. Quite literally, when a window had been opened for so long a time as to constitute immemorial usage in law, the light became an "ancient light" that the law protected from disturbance. The Prescription Act of 1832 created a statutory prescription for light. It provided that

> *when the access and use of light to and for (any building) shall have been actually enjoyed therewith for the full period of 20 years without interruption, the right thereto shall be deemed absolute and indefeasible, any local usage or custom to the contrary notwithstanding, unless it shall appear that the same was enjoyed by some consent or agreement, expressly made or given for that purpose by deed or writing (UK Statute Law Database).*

The Fontainebleau Case

The Sunshine State—Florida—has the dubious distinction of formalizing the rejection of the Ancient Lights doctrine and pronouncing that there is no common law right to sunlight. The leading case in America on the right to sunlight is Fontainebleau Hotel Corp. v. Forty-Five Twenty-Five, Inc. (Fontainebleau Hotel Corp., 1959). In this case, the Fontainebleau Hotel in Miami Beach proposed a 14-story addition in the late 1950s. The Eden Roc Hotel, which was located immediately adjacent to the Fontainebleau, objected to this addition. They claimed that during the winter months, from approximately 2 p.m. to sunset, the shadow of the proposed addition would extend over the cabana, swimming pool, and sunbathing areas of the Eden Roc.

They also contended that the addition would interfere with the light and air on the beach in front of the Eden Roc and cast a shadow of such size as to render the beach wholly unfit for the use and enjoyment of the guests of the Eden Roc. In addition, it was charged that one of the reasons for the construction was actual malice and ill will on the part of the President of the Fontainebleau toward the President of the Eden Roc.

The trial court ruled in favor of the Eden Roc on the grounds that no person has a right to use his property to the injury of another (Caton & Kettles, 1980). However, that decision was reversed on appeal and construction was allowed to continue. Several principles of law were set forth by the Third District that are still followed today and laid the groundwork for some of the principles of solar law. The principles established by this court are as follows:

- A property owner must never use his property so as to injure the lawful rights of another. A property owner may put his own property to any reasonable and lawful use, so long as he does not thereby deprive the adjoining landowner of any right of enjoyment of his property that is recognized and protected by law and as long as his use is not such a one as the law will pronounce a nuisance.
- A landowner does not have any legal right to the free flow of light and air across the adjoining land of his neighbor.
- The English doctrine of Ancient Lights has been unanimously repudiated in other states where that question has arisen and has no validity in Florida.
- Because there is no legal right to the free flow of light and air from the adjoining land, there is no cause of action for nuisance, damages, or injunctive relief even though a building or structure interferes with the passage of light and air to adjoining premises.

Early efforts to address solar access

During the height of the 1978-1985 tax credits for solar energy equipment, a host of articles and books were published promoting solar conscious land use planning (Kraemer, 1978). While not widely adopted, these guidelines provided some excellent and well thought out approaches to protecting solar access in new home construction. These guidelines remain useful today but will typically only apply to new construction and not address the vast inventory of existing homes and neighborhoods.

Land use planning

Local governments have the ability to adopt solar-access policies within the framework of the local comprehensive and land use plans. A policy statement recognizing the benefits of solar energy and supporting public regulations to promote these benefits establishes the public purpose and validity of such actions. Incorporating solar-site planning in land use planning allows the developer to maximize southern exposures so

that as many buildings and lots as possible can have maximum access to sunlight. Trees, major vegetation, and taller buildings must be placed in such a way that the shadowing of adjacent residential structures will be minimized. In the site-planning process, a developer can provide that the solar sky space above neighboring parcels of land will remain clear and unobstructed to preserve solar access. One way to accomplish this objective is to provide for solar easements, which are defined as restrictions on adjoining lots that would prohibit intrusions into the solar sky space, such as another building or trees. A restrictive covenant can accomplish this as well by providing that no solar energy collector shall be shaded by any building, vegetation, or obstruction between certain hours on a certain date of any year.

Landscape ordinances can be modified to promote vegetation that complements solar energy use or provides exemptions for trees and vegetation that block solar access.

Solar Easements

A solar easement is the prevalent method of assuring solar access. The general principle of law in effect in the US is that a land owner owns at least as much of the air space above the ground as he can occupy or use in connection with the land, and the fact that he does not occupy it in a physical sense by erection of buildings and the like is not material (Caton, 1980). Because the property owner does have property rights in the air space above the land, he has the right to grant an easement for light within that air space. However, an easement for light and air cannot be created by implication nor can it be implied by any length of continuous enjoyment (Caton, 1980). This decision further eroded the doctrine of Ancient Lights and resulted in the need for statutory authority for modern solar easements (Caton, 1980).

Covenants, Conditions, and Restrictions

Condominium and homeowner associations are fairly common entities in residential communities today. The associations generally govern the affairs of the community and, in addition to enforcing and amending restrictive covenants, may impose other restrictions on property owners subject to their rules.

The condominium association is a corporate entity and has the authority to govern its affairs in accordance with a set of duly adopted bylaws. The bylaws of a condominium association are included in the declaration of condominium, the provisions of which are considered binding agreements that run with the land. Generally, condominium bylaws will not be invalidated unless their application is arbitrary, they are in violation of public policy, or they infringe upon a constitutional right. Where the bylaws empower the board of directors of the association with discretionary authority, such as architectural review and approval, its action must be reasonably related to the promotion of the health, happiness, and peace of mind of the unit owners. In addition, the courts have held that where the decision to allow a particular use is within the discretion of the board, the use must be allowed unless it can be demonstrated to be antagonistic to the legitimate objectives of the association.

A homeowners association is an organization consisting of property owners within a subdivision that has been granted or assumes certain powers and is in essence residential private government. Its authority and powers are contained in a variety of documents, including restrictive covenants and bylaws. Restrictive covenants are mutual agreements contained in deeds to real property. They are typically part of planned communities and subdivisions where the developer has stipulated the architectural form and general scheme of construction in the community. These restrictions are not personal in nature but rather are considered to “run with the land.” That is, they are effective against all subsequent owners of the affected property.

The most frequently found restrictive covenants relating to the use of solar energy include restrictions on where collectors may be located (e.g., a place other than on the front of the house), those that require board-of-architect approval as a condition precedent to external structural alterations (such as the installation of the solar collectors anywhere on the house), prohibitions against protrusions above roof level (television antennas are the usual subject of these restrictions but they can also affect roof-mounted solar collectors), or an outright prohibition of solar systems.

Homeowner association bylaws often contain the details as to how the powers of the association will be exercised and will often include the specifics of the guidelines to be followed by architectural review boards. Regarding the validity of homeowner association bylaws, it has been suggested that the power of the association is without limit, although basic consideration regarding the validity of use restrictions may still be relied upon.

Courts have long held restrictive covenants to be valid exceptions to the general principle against restraint on free use of property. Judicial acceptance of restrictive covenants is premised on the supposition that such recognition is not contrary to public policy or express law. The restriction must also be reasonable. A subdivision's restrictive covenant that effectively or directly prohibits the use of solar will not be upheld where state or local law expressly provides otherwise through a solar-rights statute or ordinance. If the restrictive covenant precedes the effective date of the statute or ordinance, the restriction may be invalidated by the court based on public policy considerations.

In the absence of a solar-rights law, it may still be possible for a homeowner to overcome a restrictive covenant that prohibits the use of solar energy. The deed that conveyed the covenant may stipulate a time of expiration for the restriction. In addition, the owners subject to the restriction and the courts may terminate the restriction under certain conditions.

Express termination

The restrictive covenant may specifically include the time and conditions under which it will no longer be effective. From a practical point of view, however, it is doubtful that a provision of this kind would be found in a restriction against solar energy. Since the motivating rationale behind these restrictions is usually based on aesthetics, the doctrine of "once an eyesore, always an eyesore" will usually make an express termination date unlikely. An alternative provision would stipulate the time for termination with a provision for automatic extension upon landowner approval. In either case, provisions dictating duration are valid and are consistent with the principle affording free use and enjoyment of land.

Modification

A landowner who is subject to restrictive covenants may, by release or upon agreement with the other owners within the subdivision, modify the restrictions. The deed may specify the manner by which the modification will be made, for example, by all or a majority of the affected owners. The developer may also exercise his or her right to modify the restrictions. However, agreement by the landowners to such modification is necessary unless the developer expressly reserved the right to future modifications.

Modification of a restrictive covenant could effectively operate to remove restrictions against the use of solar equipment. For example, where a restrictive covenant prohibits alterations to the street-facing facades of homes in the subdivision, an exception could be provided when the alteration is a solar energy system. The exception could remove all restrictions against the use of solar energy or allow the use of solar energy, subject to approval of an architectural review board. In either case, the restriction would still be effective against all frontal alterations except solar energy systems.

Cancellation

A court of competent jurisdiction may also act to terminate restrictive covenants. In a case in which a homeowner is violating a restriction, other parties to the covenant may sue to recover damages for breach of the covenant, or an injunction may be sought to enforce the restriction. The court may award damages or grant the injunction where it determines the activity is in fact a violation of a valid restriction. The court may, on the other hand, determine the activity is not a violation and deny an award of damages or the injunction. Or, the court may determine on the basis of "changed conditions" that the restriction is no longer valid and thus may order it cancelled. The latter instance is another method of terminating restrictive covenants that prohibit solar and one that has a good chance for success, given current energy policies favoring the use of solar energy.

There are affirmative defenses that can be raised in a situation in which the homeowner is taken to court by his association. Where other homeowners have acted in violation of the same restrictive covenant and the homeowners in the subdivision took no action or approved of the action, the solar owner may allege a waiver or abandonment of the restriction.

For example, in a subdivision where solar collectors are prohibited on the street-facing facade, yet one or more homeowners have installed collectors on this facade without reprisal from other homeowners, the court may deny any request for an injunction against subsequent homeowners installing solar collectors on the street-facing facade. Allowing collectors on the side-yard facing facades of the home that were, nonetheless, visible from the street may not constitute a waiver or abandonment of the restriction. One could maintain an argument for abandonment in that the overall effect is the same, that is, the introduction of a readily visible nonconforming or unaesthetic element into the community. Where work on an installation subject to the restriction has been allowed to progress to the point or where an injunction would present an undue hardship to the defendant, an injunction may only be granted where a nuisance has developed. The scope of the solar project would have an impact on the use of this defense. As in all equitable considerations, the benefits and burdens of competing interests are weighed by the court in arriving at its decision.

Local ordinances

Cities and counties are authorized to adopt ordinances for a variety of purposes. This typically includes the authority to prepare and enforce comprehensive plans, zoning regulations and building codes and to adopt ordinances and resolutions necessary for the exercise of its powers. Despite these broad grants of power for local self-government, the local ordinance is still subject to judicial scrutiny. In addition to the requirement that an act be one within the authority of the local government, it must be reasonable, equal, and impartial in its operation. However, there is a strong presumption of validity of a local ordinance, since local officials are in a better position than the courts are to have knowledge of any local conditions upon which the ordinance is predicated.

In spite of the scope of authority of the local governing body, the principles affecting the validity of its actions still provide several bases to void an anti-solar ordinance. The concepts of reasonableness, consistency and promoting the public interest will be considered. The reasonableness of a local ordinance will be gauged in the context of current events. What was reasonable in an era of inexpensive, plentiful fossil fuel supplies may no longer be considered reasonable given today's energy policies that encourage the use of renewable energy.

While there is authority indicating that land use restrictions may be based on aesthetic considerations alone, the courts have generally held that building regulations based solely on aesthetic considerations cannot be supported under the police power or in the absence of an actual finding of fact that the restrictions bear a reasonable relation to the

public welfare. Given our current energy predicament, it would appear that restrictions imposed on the use of solar energy devices would contravene rather than promote the public interest.

Where a state law prohibits a local government from enacting an ordinance, which directly or effectively prohibits the use of solar energy, the state law will take precedence over the local ordinance. In the case of an ordinance that was in effect prior to the state law, the solar owner may still prevail by citing public policies that favor the use of solar energy.

Analysis of State Solar Access Laws

Thirty-four states (and a handful of municipalities) have some kind of protection for solar easements or solar rights. That leaves 16 states that have no protection. Some of the states lacking solar easements or solar rights laws are surprising, given the other pro-solar/renewable energy policies in the state (Connecticut, Illinois, Pennsylvania, Texas, Vermont, for example). However, even those states that do have solar easements or solar rights laws have enforcement issues that can render the laws ineffective or subject to expensive litigation to enforce. The preliminary review of state solar access and solar rights laws indicates a real need for simplified enforcement of the protection afforded by solar rights laws. In addition, the voluntary nature of solar easement statutes makes them useless to property owners that have neighbors unwilling to provide the solar easement.

There are, however, some notable exceptions to this generalization, and the draft model statute will incorporate features of those states with good law.

Solar easement statutes

Solar easement statutes have very common elements, and virtually all are "voluntary," meaning that a solar owner cannot require that their neighbor agree to a solar easement. The standard elements of a typical solar access law are that it must be in writing, be recorded (as any other real property interest), express the horizontal and vertical angles of the easement, include provisions relating to the grant or termination of the easement, and provide for any compensation arrangements to the grantor for maintaining the easement or to the grantee in the event of interference.

Short of mandating solar easement, one approach used by a state includes a registration process that allows a solar owner to register their solar system with the local governing body—essentially putting their neighbors on notice that the solar system is in place. In that event, a solar owner can, in essence, impose a solar easement on the neighbor. This is a very unique and potentially effective solar access tool. There are also states that direct the local governing body to require a solar access element in subdivision or development plans submitted for their review and approval. While this is noteworthy, it will only protect solar access in new construction.

Solar rights

There are essentially two models that have perpetuated over the last two-plus decades that attempt to protect the right of homeowners to install solar energy systems. The first model addresses local government ordinances; the second model addresses private land use restrictions, such as covenants, conditions, and restrictions in deeds, as well as declarations in condominiums documents. Some states address both.

The typical language of a statute that protects solar rights at the state or local government level will contain language such as, "The adoption of an ordinance by a governing body which prohibits or has the effect of prohibiting the installation of solar collectors is expressly prohibited." The typical language of a statute that protects solar

rights in the context of private land use restrictions is, "Any covenant, restriction, or condition contained in any deed, contract, security agreement, or other instrument affecting the transfer or sale of or any interest in real property which effectively prohibits the installation or use of a solar energy device is void and unenforceable." Some states distinguish their laws from others by defining solar energy device, providing or prohibiting retroactive effect, defining "effectively prohibiting" (usually by assigning a cost of compliance with a requirement). For the most part, the laws apply strictly to residential buildings, including condominiums.

Typical cases

Previous work has identified some of the shortcomings of traditional solar access laws (Starrs, Nelson, & Zalcman, 1999). The lack of awareness and understanding of solar rights statutes is one of the biggest obstacles to enforcement. The lack of awareness by homeowner associations and architectural review boards can lead to delays in processing applications and lawsuits that are expensive to defend and cost all parties, regardless of who prevails. Because, when a solar rights law awards the court costs and attorney fees to the prevailing party, and the homeowner is the prevailing party, they still end up paying since all homeowners in the community bear the common expenses, such as attorney fees. The lack of understanding of solar rights laws by homeowners and solar contractors can lead to missteps in the approval process. Most solar rights laws are not absolute; they still require that the homeowner apply to the architectural review board for approval, and the board has a degree of discretion in the approval process. Many homeowners and contractors believe that approval is not required and proceed with the installation without prior approval. This can lead to legal recourse by the association that has no bearing on the solar rights laws but rather pertain to the failure to follow association rules.

The following cases are examples of real events and represent the range of scenarios that occur on a daily basis.

Case 1: A homeowner purchases a solar energy system. The contractor arrives on site for installation. As neighbors notice the activity, they confront the homeowner and inquire as to the architectural review board's approval. The neighbor cites the solar rights law and says permission is not necessary. The association advises the homeowner to cease and desist work and to restore the premises to its original condition and levies a fine for every day they are in violation.

Case 2: A homeowner purchases a solar energy system. Approval from the architectural review board (ARB) is pending. The contractor applies for a permit from the local building agency, which refuses to issue the permit until a copy of the ARB approval is received. Alternately, the ARB requires a copy of the permit before approval is granted. The building permit process is so cumbersome, the contractor does not pull a permit, and ARB approval is denied.

Case 3: A homeowner considers purchase of a solar energy system. Deed restrictions require that the system not be visible from the street. The homeowner has a corner lot, and the only area not visible from the street faces north. The contractor devises a reverse mount for the collectors and runs afoul of local wind and structural codes.

Case 4: A homeowner/condominium association owns the exterior of the residence including the roof (common property). The request to install the solar energy system is denied, as they fear the roof warranty being voided, and question the liability for any damage to common property.

Case 5: A homeowner installs a solar energy system. A neighbor to the south has several very mature trees that are creeping into the solar window. The homeowner asks the neighbor to trim the trees, but the neighbor refuses, arguing that the shade of the trees reduces their air-conditioning load.

Case 6: A developer builds all homes in the community with a solar water heater and photovoltaic system. The solar window requires that a tree protected by the local landscape ordinance be removed. The developer is required to purchase and replant $20,000 trees to compensate for the removal of the protected tree.

These are just a handful of the cases, all of which occurred in states with solar rights and solar access laws. The bottom line is that the law failed to protect the solar owner or cost the solar owner more than the value of the solar energy system to secure that protection.

Exemplary Solar Access Laws

In the effort to develop a model solar access statute, we first reviewed the current law on point and critiqued the relative effectiveness of those laws, given the outcomes that were available, in terms of lawsuits, media coverage, and other resources that reported pertinent disputes. Our review of the text of solar access laws in the United States reveals some excellent provisions that can be used to draft a model solar access statute. Our goal was to be able to resolve the typical case via the provisions of the model statute. In addition, the solar industry has developed model solar installation guidelines that can be adopted by homeowner associations.

City of Gainesville, Florida

- Allows the removal of regulated (i.e., protected) trees, where they will prevent the installation of solar energy equipment (Statutory Reference 1).

State of Hawaii

- Provides a very comprehensive list of instruments that are affected (covenant, declaration, bylaws, restriction, deed, lease, term, provision, condition, codicil, contract, or similar binding agreement, how ever worded) declaring that no person shall be prevented by anyone from installing a solar energy device on any single-family residential dwelling or townhouse that the person owns, making any provision in any lease, instrument, or contract contrary to the intent of the law void and unenforceable.
- Also provides that every private entity (meaning community association) adopt rules for the placement of solar collectors: "The rules shall facilitate the placement of solar energy devices and shall not unduly or unreasonably restrict that placement so as to render the device more than twenty-five percent less efficient or to increase the cost of the device by more than fifteen percent."
- Spells out the relative risks and responsibilities, when installing solar energy equipment on common property (Statutory Reference 2).

State of Massachusetts

- Provides for, among other things, a solar easement as well as a solar access permit.
- Voids restrictions against use of solar energy.
- Provides for solar access guidelines in subdivision regulation.
- Also provides for solar access in zoning ordinances, including the regulation of planting and trimming of vegetation on public property to protect solar access on public and private solar energy systems.

- Solar access permit language is novel and provides an excellent model:

  Zoning ordinances or bylaws may also provide for special permits to protect access to direct sunlight for solar energy systems. Such ordinances or bylaws may provide that such solar access permits would create an easement to sunlight over neighboring property. Such ordinances or bylaws may also specify what constitutes an impermissible interference with the right to direct sunlight granted by a solar access permit and how to regulate growing vegetation that may interfere with such right. Such ordinances or bylaws may further provide standards for the issuance of solar access permits, balancing the need of solar energy systems for direct sunlight with the right of neighboring property owners to the reasonable use of their property within other zoning restrictions. Such ordinances or bylaws may also provide a process for issuance of solar access permits including, but not limited to, notification of affected neighboring property owners, opportunity for a hearing, appeal process and recordation of such permits on burdened and benefited property deeds. Such ordinances or bylaws may further provide for establishment of a solar map identifying all local properties burdened or benefited by solar access permits. Such ordinances or bylaws may also require the examination of such solar maps by the appropriate official prior to the issuance of a building permit (Statutory Reference 3).

State of New Jersey

- While this law's prohibition against deed restrictions that prohibit solar energy is fairly typical, it provides for enforcement of the law by the state's Department of Community Affairs, which hopes to avoid the need for expensive litigation (Statutory Reference 4).

State of New Mexico

- Provides that a homeowner can record ownership of a solar energy system and allows the owner to establish a solar easement: "A solar right may be claimed by an owner of real property upon which a solar collector…has been placed. Once vested, the right shall be enforceable against any person who constructs or plans to construct any structure, in violation of the terms of the Solar Rights Act…or the Solar Recordation Act… A solar right shall be considered an easement appurtenant, and a suit to enforce a solar right may be brought at law or in equity" (Statutory Reference 5).

City of Ashland, Oregon

- Establishes a procedure for a obtaining a solar access permit to protect a solar energy system from vegetation that would shade the collector.
- Provides for recording the easement.
- This detailed ordinance provides a level of protection that a voluntary solar easement does not. The procedures for obtaining the permit are comprehensive and protect the interests of all parties involved (Statutory Reference 6).

Virgin Islands

- Provides that deed restrictions (and other instruments) that prohibit the use of solar and wind energy are void and unenforceable.
- Also provides for a greater height restriction for solar and wind energy devices and provides for the dedication of solar easements as a condition of subdivision approval (Statutory Reference 7).

State of Wisconsin

- Provides local governments with the authority to enact an ordinance to require the trimming of vegetation that blocks solar energy equipment.
- Also, provides that restriction against the use of solar or wind energy are void (Statutory Reference 8).

Recommendations

Given the fact that many of the current laws that purport to protect solar access are ineffective or too expensive to enforce, every state should examine its practices and consider amending them to conform to the model statute. At the state level, the adoption of the model statute that addresses state and local practices on use of solar energy equipment is recommended. The model statute should include prescriptive measures—such as community design, solar easements, as well as prohibitive measures, such as measures restricting the use of solar energy.

At the local level, it is recommended that the focus be on implementation and enforcement of state law, requirement that site-plan review and approval include an element to address the current and future use of solar energy (such as solar easements, landscaping, building height restriction, and orientation).

The key to the usefulness of a solar access law is enforcement. It is imperative that a specific entity be charged with oversight of the statute. These responsibilities must include responding to consumer and community association inquiries, conflict resolution, and the authority to impose penalties for violation of the statute.

Through strategic partnerships with the League of Cities, Association of Counties, and the Community Association Institute, education and awareness of solar access laws can proactively avoid disputes among neighbors. It is further recommended that partnering with these entities be explored to expand the outreach of this effort.

Components of Solar Access Legislation

Elements of a Solar Rights and Access Law

1. Preamble
    a. Public Purpose (needed to assure constitutionality)
    b. Policy Statement in Support of Solar Energy (needed to allow for retroactive effect and overcome constitutional challenge)
    c. Legislative Intent (for example
        i. Energy security
        ii. Cost of energy
        iii. Green House Gas reduction strategy
        iv. Economic development
        v. Fossil fuel offset
        vi. Renewable Portfolio Standard
        vii. Other
2. Definitions
    a. Solar Energy Device (active and passive)
    b. Other renewable measures (wind, geothermal, etc)
    c. Buildings included (residential, commercial, multi-family, condominium)
    d. Other

3. Application
    a. CCRs
    b. Solar contract
    c. Condominium declarations
    d. Ordinances
    e. Enforcement
        i. Litigation
        ii. Prevailing party legal fee award
        iii. Penalties
        iv. Code enforcement

4. Where the law should be codified
    a. Constitutional amendment
    b. Municipal law section
    c. Building code section
    d. Condominium regulation section
    e. Homeowner association section

MODEL STATUTE/ORDINANCE TO ENCOURAGE ACCESS TO SOLAR ENERGY

STATE/CITY/COUNTY _____

CHAPTER/SECTION NO. _____

A LAW PROVIDING FOR SOLAR EASEMENTS; INVALIDATING PUBLIC AND PRIVATE RESTRICTIONS RESTRICTING THE USE OF SOLAR ENERGY SYTEMS; ESTABLISHING GUIDELINES FOR THE INSTALLATION OF SOLAR ENERGY SYSTEMS, INCLUDING STANDARDS AND PERMIT REQUIREMENTS; PROVIDING FOR CERTIFICATION OF INSTALLERS OF SOLAR ENERGY SYSTEMS; PROVIDING FOR ENFORCEMENT AND PENALTIES; SUPERSEDING ALL LAWS IN CONFLICT OR INCONSISTENT HEREWITH; PROVIDING AN EFFECTIVE DATE.

WHEREAS, the State/City/County of _____ wishes to advance the use of solar energy by all of its citizens, businesses and industries; and,

WHEREAS, the State/City/County of _____has determined that public and private land use and property restrictions can impair the ability of our citizens, businesses and industries to install said systems; and,

WHEREAS, properly designed land use standards can prepare communities for greater access to solar energy; and,

WHEREAS, the installation of solar energy systems according to established guidelines by properly trained and certified personnel is essential to the safe and efficient operation of said systems;

[ADD OTHER STATE SPECIFIC POLICIES THAT MIGHT BE CITED HERE]

NOW, THEREFORE, it is in the interest of the health, welfare and safety of the people of _____ to provide the infrastructure to assure the effective deployment of solar technology.

NOW, BE ENACTED BY THE STATE OF _____ OR
NOW, THEREFORE, BE IT ORDAINED BY THE BOARD OF CITY/COUNTY COMMISSIONERS OF _____ _____, that:
(City/County) (State)

This Section Is Intended to be Interactive among Stakeholders to Explore the Options and Get Feedback from States/Cities with Best Practices as Identified in the Exemplary Law Section.

Section 1. Definitions

"Solar Energy Device" (active and passive): (Florida model) Solar energy device means the equipment and requisite hardware that provide and are used for collecting, transferring, converting, storing, or using incident solar energy for water heating, space heating, cooling, generating electricity, or other applications that would otherwise require the use of a conventional source of energy such as petroleum products, natural gas, manufactured gas, or electricity produced from a nonrenewable resource.

"Other renewable measures" - [Each jurisdiction needs to evaluate their renewable energy resources to determine which technologies to include in the statute.]

Section 2. Solar Easements

(Massachusetts model, others to consider: New Jersey and New Mexico, City of Ashland)

A. An easement of direct sunlight may be acquired over the land of another by express grant or covenant, or by a solar access permit as set forth in section 2. Any instrument creating a solar easement may include, but the contents are not limited to, all of the following:

(1) A description of the dimensions of the easement expressed in measurable terms, such as vertical or horizontal angles measured in degrees, or the hours of the day on specified dates during which direct sunlight to a specified surface of a solar collector, device, or structural design feature may not be obstructed, or a combination of these descriptions.

(2) The restrictions placed upon vegetation, structures, and other objects which would impair or obstruct the passage of sunlight through the easement.

(3) The amount, if any, of permissible obstruction of the passage of sunlight through the easement, expressed in measurable terms, such as a specific percentage of sunlight that may be obstructed.

(4) The provisions for trimming vegetation that would impermissibly obstruct the passage of sunlight through the easement including any compensation for trimming expenses.

(5) Any provisions for compensation of the owner of property benefiting from the easement in the event of impermissible obstruction of the easement.

(6) The terms or conditions, if any, under which the easement may be revised or terminated.

Any instrument creating a solar easement shall be recorded in the registry of deeds in the county or district or, in the case of registered land, in the registry district of the land court in which the land affected is situated.

B. Zoning ordinances or community association bylaws may provide for special permits to protect access to direct sunlight for solar energy systems. Such ordinances or bylaws may provide that such solar access permits create an easement to sunlight over neighboring property. Such ordinances or bylaws may also specify what constitutes an impermissible interference with the right to direct sunlight granted by a solar access permit and how to regulate growing vegetation that may interfere with such right. Such ordinances or bylaws may further provide standards for the issuance of solar access permits balancing the need of solar energy systems for direct sunlight with the right of neighboring property owners to the reasonable use of their property within other zoning restrictions. Such ordinances or bylaws may also provide a process for issuance of solar access permits including, but not limited to, notification of affected neighboring property owners, opportunity for a hearing, appeal process and recordation of such permits on burdened and benefited property deeds. Such ordinances or bylaws may further provide for establishment of a solar map identifying all local properties burdened or benefited by solar access permits. Such ordinances or bylaws may also require the examination of such solar maps by the appropriate official prior to the issuance of a building permit.

Section 3. Solar Rights

(Massachusetts model, others to consider: Hawaii and Wisconsin)

Solar energy systems; installation or use; restrictive provisions
Any provision in an instrument relative to the ownership or use of real property which purports to forbid or unreasonably restrict the installation or use of a solar energy system or the building of structures that facilitate the collection of solar energy shall be void.
A community association shall not adopt and shall not enforce any rule related to the installation or maintenance of solar collectors, if compliance with a rule or rules would increase the solar collectors' installation or maintenance costs by an amount which is estimated to be greater than 10 percent of the total cost of the initial installation of the solar collectors, including the costs of labor and equipment. A community association shall not adopt and shall not enforce any rule related to the installation or maintenance of solar collectors, if compliance with such rules inhibits the solar collectors from functioning at their intended maximum efficiency. The [Agency] shall enforce the provisions of this law in accordance with the authority granted under [section x].

Section 4. Local Ordinances

(Massachusetts model, Florida provision)

A. Zoning ordinances or bylaws adopted or amended pursuant to section five of this chapter may encourage the use of solar energy systems and protect solar access by regulation of the orientation of streets, lots and buildings, maximum building height limits, minimum building set back requirements, limitations on the type, height and placement of vegetation and other provisions. Zoning ordinances or bylaws may also establish buffer zones and additional districts that protect solar access which overlap existing zoning districts. Zoning ordinances or bylaws may further regulate the planting and trimming of vegetation on public property to protect the solar access of private and public solar energy systems and buildings. Solar energy systems may be exempted from set back, building height, and roof and lot coverage restrictions.

B. Notwithstanding any provision of general or special law, the adoption of an ordinance by a city or county which prohibits or has the effect of prohibiting the installation of solar energy systems [or other device based on renewable resources] is expressly prohibited.

References

Boyd v. McDonald. 408 P.2d 717. (1965).

Caton, D., & Kettles, CM (1980). Solar Law, Vol 4, No. 77, Florida Municipal Record.

Fontainebleau Hotel Corp. v. Forty-Five Twenty-Five, Inc., 114 So.2d 357 (1959), cert. denied 117 So.2d 842.

Kramer, SE (1978). Solar Law. Colorado Springs, CO, Shepards, Inc.

United States v. Causby, 328 U.S. 256, 66 S.1. 1062 (1946).

Sacramento and San Joaquin Drainage District v. Reed, 215 Cal. App. 2d 60 (1963)

T. Starrs, L. Nelson, and F. Zalcman, (1999). *Bringing Solar Energy to the Planned Community: A Handbook on Rooftop Solar Systems and Private Land Use Restrictions* (Contract Number: DE – FG01 – 99EE10704), U.S. Department of Energy, Office of Scientific and Technical Information: Oak Ridge, TN.

UK Statute Law Database, Office of Public Sector Information, United Kingdom.

APPENDIX

Statutory References

1. CITY OF GAINESVILLE, FLORIDA

§30-254. Permits for tree removal.

(e) Permit approval criteria. Removal or relocation of regulated trees shall be approved by the city manager or designee upon a finding that the trees pose a safety hazard; have been weakened by disease, age, storm, fire or other injury; or prevent the reasonable development of the site, including the installation of solar energy equipment. Regulated trees shall not be removed, damaged or relocated for the purpose of locating utility lines and connections unless no reasonably practical alternative as determined by the city manager or designee is available.

2. STATE OF HAWAII

§196-7 Placement of solar energy devices.

(a) Notwithstanding any law to the contrary, no person shall be prevented by any covenant, declaration, bylaws, restriction, deed, lease, term, provision, condition, codicil, contract, or similar binding agreement, however worded, from installing a solar energy device on any single-family residential dwelling or townhouse that the person owns. Any provision in any lease, instrument, or contract contrary to the intent of this section shall be void and unenforceable.

(b) Every private entity shall adopt rules by December 31, 2006, that provide for the placement of solar energy devices. The rules shall facilitate the placement of solar energy devices and shall not unduly or unreasonably restrict that placement so as to render the device more than twenty-five per cent less efficient or to increase the cost of the device by more than fifteen per cent. No private entity shall assess or charge any homeowner any fees for the placement of any solar energy device.

(c) Any person may place a solar energy device on any single-family residential dwelling or townhouse unit owned by that person, provided that:

(1) The device is in compliance with the rules and specifications adopted pursuant to subsection (b);

(2) The device is registered with the private entity of record within thirty days of installation; and

(3) If the device is placed on a common element or limited common element as defined by a project's declaration, the homeowner shall first obtain the consent of the private entity; provided further that such consent shall be given if the homeowner agrees in writing to:

(A) Comply with the private entity's design specification for the installation of the device;

(B) Engage a duly licensed contractor to install the device; and

(C) Within fourteen days of approval of the solar device by the private entity, provide a certificate of insurance naming the private entity as an additional insured on the homeowner's insurance policy.

(d) If a solar energy device is placed on a common element or limited common element:

(1) The owner and each successive owner of the single-family residential dwelling or townhouse unit on which the device is placed shall be responsible for any costs for damages to the device, the common elements, limited common elements, and any adjacent units, arising or resulting from the installation, maintenance, repair, removal, or

replacement of the device. The repair, maintenance, removal, and replacement responsibilities shall be assumed by each successive owner until the solar energy device has been removed from the common elements or limited common elements. The owner and each successive owner shall at all times have and maintain a policy of insurance covering the obligations of the owner under this paragraph and shall name the private entity as an additional insured under said policy; and

(2) The owner and any successive owner of the single-family residential dwelling or townhouse unit on which the device is placed shall be responsible for removing the solar energy device if reasonably necessary or convenient for the repair, maintenance, or replacement of the common elements or limited common elements.

(e) If a material or labor roof warranty exists at the time a solar energy device is installed on a roof that is a common element or limited common element, the homeowner shall obtain confirmation in writing from the company that issued the warranty that the installation of the solar energy device will not void the roof warranty. The homeowner shall provide the private entity with a copy of the confirmation.

(f) For the purposes of this section:
"Private entity" means any association of homeowners, community association, condominium association, cooperative, or any other non-governmental entity with covenants, bylaws, and administrative provisions with which the homeowner's compliance is required.

"Solar energy device" means any identifiable facility, equipment, apparatus, or the like, including a photovoltaic cell application, that is applicable to a single-family residential dwelling or townhouse and makes use of solar energy for heating, cooling, or reducing the use of other types of energy dependent upon fossil fuel for generation; provided that "solar energy device" shall not include skylights or windows. [L 1992, c 268, §1; am L 2005, c 157, §2]

3. STATE OF MASSACHUSETTS

CHAPTER 187. EASEMENTS
Chapter 187: Section 1A. Solar easements

Section 1A. An easement of direct sunlight may be acquired over the land of another by express grant or covenant, or by a solar access permit as set forth in section 9B of chapter 40A.

Any instrument creating a solar easement may include, but the contents are not limited to, all of the following:

(1) A description of the dimensions of the easement expressed in measurable terms, such as vertical or horizontal angles measured in degrees, or the hours of the day on specified dates during which direct sunlight to a specified surface of a solar collector, device, or structural design feature may not be obstructed, or a combination of these descriptions.

(2) The restrictions placed upon vegetation, structures, and other objects which would impair or obstruct the passage of sunlight through the easement.

(3) The amount, if any, of permissible obstruction of the passage of sunlight through the easement, expressed in measurable terms, such as a specific percentage of sunlight that may be obstructed.

(4) The provisions for trimming vegetation that would impermissibly obstruct the passage of sunlight through the easement including any compensation for trimming expenses.

(5) Any provisions for compensation of the owner of property benefiting from the easement in the event of impermissible obstruction of the easement.

(6) The terms or conditions, if any, under which the easement may be revised or terminated.

Any instrument creating a solar easement shall be recorded in the registry of deeds in the county or district or, in the case of registered land, in the registry district of the land court in which the land affected is situated.

Chapter 184: Section 23C. Solar energy systems; installation or use; restrictive provisions

Section 23C. Any provision in an instrument relative to the ownership or use of real property which purports to forbid or unreasonably restrict the installation or use of a solar energy system as defined in section one A of chapter forty A or the building of structures that facilitate the collection of solar energy shall be void.

Chapter 40A: Section 1A. Definitions

Section 1A. As used in this chapter the following words shall have the following meanings:

Permit granting authority: the board of appeals or zoning administrator.

Solar access: the access of a solar energy system to direct sunlight.

Solar energy system: a device or structural design feature, a substantial purpose of which is to provide daylight for interior lighting or provide for the collection, storage and distribution of solar energy for space heating or cooling, electricity generating, or water heating.

Special permit granting authority: the board of selectmen, city council, board of appeals, planning board, or zoning administrators as designated by zoning ordinance or bylaw for the issuance of special permits.

Zoning: ordinances and bylaws adopted by cities and towns to regulate the use of land, buildings and structures to the full extent of the independent constitutional powers of cities and towns to protect the health, safety and general welfare of their present and future inhabitants.

Zoning administrator: a person designated by the board of appeals pursuant to section 13 to assume certain duties of said board.

Chapter 40A, Section 9B: Solar access

Section 9B. Zoning ordinances or bylaws adopted or amended pursuant to section five of this chapter may encourage the use of solar energy systems and protect solar access by regulation of the orientation of streets, lots and buildings, maximum building height limits, minimum building set back requirements, limitations on the type, height and placement of vegetation and other provisions. Zoning ordinances or bylaws may also establish buffer zones and additional districts that protect solar access which overlap existing zoning districts. Zoning ordinances or bylaws may further regulate the planting and trimming of vegetation on public property to protect the solar access of private and public solar energy systems and buildings. Solar energy systems may be exempted from set back, building height, and roof and lot coverage restrictions.

Zoning ordinances or bylaws may also provide for special permits to protect access to direct sunlight for solar energy systems. Such ordinances or bylaws may provide that such solar access permits would create an easement to sunlight over neighboring property. Such ordinances or bylaws may also specify what constitutes an impermissible interference with the right to direct sunlight granted by a solar access permit and how to regulate growing vegetation that may interfere with such right. Such ordinances or bylaws may further provide standards for the issuance of solar access permits balancing the need of solar energy systems for direct sunlight with the right of neighboring property owners to the reasonable use of their property within other zoning restrictions. Such ordinances or bylaws may also provide a process for issuance of solar access permits including, but not limited to, notification of affected neighboring property owners, opportunity for a hearing, appeal process and recordation of such permits on burdened and benefited property deeds. Such ordinances or bylaws may further provide for establishment of a solar map identifying all local properties burdened or benefited by solar access permits. Such ordinances or bylaws may also require the examination of such solar maps by the appropriate official prior to the issuance of a building permit.

4. STATE OF NEW JERSEY

§ 45:22A-48.2. Solar collectors on certain roofs, homeowners' association authority limited

a. An association formed for the management of commonly-owned elements and facilities, regardless of whether organized pursuant to section 1 of P.L.1993, c.30 (C.45:22A-43), shall not adopt or enforce a restriction, covenant, bylaw, rule or regulation prohibiting the installation of solar collectors on certain roofs of dwelling units, as follows:

> A roof of a single family dwelling unit which is solely owned by an individual or individuals, and which is not designated as a common element or common property in the governing documents of an association; and
>
> A roof of a townhouse dwelling unit, which for the purposes of this subsection means any single-family dwelling unit constructed with attached walls to another such unit on at least one side, which unit extends from the foundation to the roof, and has at least two sides which are unattached to any other building, and the repair of the roof for the townhouse dwelling unit is designated as the responsibility of the owner and not the association in the governing documents.

b. An association may adopt rules to regulate the installation and maintenance of solar collectors on those roofs as specified in subsection a. of this section, in accordance with subsection c. of this section, and as follows:

(1) The qualifications, certification and insurance requirements of personnel or contractors who may install the solar collectors;

(2) The location where solar collectors may be placed on roofs;

(3) The concealment of solar collectors' supportive structures, fixtures and piping;

(4) The color harmonization of solar collectors with the colors of structures or landscaping in the development; and

(5) The aggregate size or coverage or total number of solar collectors, provided that the provisions of paragraph (2) of subsection c. below are met.

c. (1) An association shall not adopt and shall not enforce any rule related to the installation or maintenance of solar collectors, if compliance with a rule or rules would increase the solar collectors' installation or maintenance costs by an amount which is estimated to be greater than 10 percent of the total cost of the initial installation of the solar collectors, including the costs of labor and equipment.
(2) An association shall not adopt and shall not enforce any rule related to the installation or maintenance of solar collectors, if compliance with such rules inhibits the solar collectors from functioning at their intended maximum efficiency.

d. The Commissioner of Community Affairs shall enforce the provisions of P.L.2007, c.153 (C.45:22A-48.2) in accordance with the authority granted under section 18 of P.L.1977, c. 419 (C.45:22A-38).

e. The provisions of P.L.2007, c.153 (C.45:22A-48.2) shall not apply to associations that are under the control of the developer as provided under section 5 of P.L.1993, c.30 (C.45:22A-47).

5. STATE OF NEW MEXICO

[Statute modified by editor to clarify and update]

Solar Recordation Act – Sections 47-3-6 to-12 NMSA 1978 47-3-6. Short title.

This act [47-3-6 to 47-3-12 NMSA 1978] may be cited as the "Solar Recordation Act."

47-3-7. Legislative findings and declaration

The legislature finds that in view of the present energy crisis, all renewable energy sources must be encouraged for the benefit of the state as a whole. The legislature further finds that solar energy is a viable energy source in New Mexico, and as such, its development should be encouraged. Since solar energy may be used in small-scale installations and one of the ways to accomplish such encouragement is by protection of rights necessary for small-scale installations, the legislature declares such protection to be the purpose of the Solar Recordation Act [47-3-6 to 47-3-12 NMSA 1978] and necessary to the public interest.

47-3-8. Method of claiming; effect; limitations

A solar right may be claimed by an owner of real property upon which a solar collector, as defined in Subsection A of Section 47-3-3 NMSA 1978, has been placed. Once vested, the right shall be enforceable against any person who constructs or plans to construct any structure, in violation of the terms of the Solar Rights Act [47-3-1 to 47-3-5 NMSA 1978] or the Solar Recordation Act [47-3-6 to 47-3-12 NMSA 1978]. A solar right shall be considered an easement appurtenant, and a suit to enforce a solar right may be brought at law or in equity. The solar right shall be subject to the provisions of the Solar Recordation Act and the Solar Rights Act.

47-3-9. Recordation; effect of failure to record; contest.

A. Any person claiming a solar right shall record that right by filing a declaration in substantially the following form with the county clerk of each county in which is located any portion of the properties burdened by a solar right or any portion of the properties on which a solar right is claimed.

SOLAR RIGHT DECLARATION

[Name of person] _____owner of the real property described below, claims a solar right in favor of the following described real estate in _____county, New Mexico:

(Description either by metes and bounds, if in a platted subdivision, by lot and block subdivision name, by middle Rio Grande conservancy district tract number or other adequate legal description.)

The following named persons have each received notification by certified mail evidenced by a return receipt signed by the named person, or if the address of any person was not known and could not be ascertained by reasonable diligence, or if a return receipt signed by the named person could not be obtained, then notification to that person shall be made by publication of a copy of this declaration, with the intended date of filing, at least once a week for two consecutive weeks in a newspaper of general circulation in the county in which the property for which the solar right is being claimed is located, the last publication of which was no less than ten days prior to the filing of this declaration: (A listing of the names of the holders as shown in the records of the county clerk of any interest in property burdened by a claimed solar right, including owners, mortgagors, mortgagees, lessors, lessees, contract purchasers and contract owners or sellers, and a description, either by metes and bounds if in a platted subdivision, by lot and block and subdivision name, by middle Rio Grande conservancy district tract number or other adequate legal description, of that burdened property.)

The claimant has placed improvements on the land in the form of a solar collector, as shown by the attached survey or plot plan setting forth distances from lot lines and height from ground level of all solar collectors entitled to be recorded under the provisions of the Solar Recordation Act … and setting forth the maximum height of a theoretical fence located at the property lines of the property on which the solar collector is located which will not interfere with the solar easement.

Notice is hereby given that by virtue of the Solar Recordation Act, the holders of any interest in property described above as having been mailed notice must record a declaration, with the county clerk in each county in which solar right recordation has been filed, contesting the claimed solar right within sixty days, or the solar right shall be fully vested. Witness [Name of person]set his hand and seal this _____ day of _____, [year][Document must be notarized].

B. Any person desiring to claim a solar right must record that right and give notice to affected property owners as provided in the Solar Recordation Act as a necessary condition precedent to enforcing a solar right. Failure to so record and give notice shall constitute a jurisdictional defect and deprive any court of subject matter jurisdiction to enforce the solar right. However, nothing in this subsection shall apply to any solar right, lease, easement or contract right which has vested prior to the effective date of this subsection.

C. Any person who receives notice of the recordation may, within sixty days after receiving notice, file a declaration contesting the right, in the same manner and at the same place as the recordation was filed. If a declaration is filed contesting the claimed solar right, then the solar right shall not be enforceable against the property covered by the declaration unless agreed to by contract or ordered by a court of competent jurisdiction, and any claim of a solar right shall expire one year from the date of declaration unless the parties agree by contract to settle the solar rights dispute or unless court action has commenced by that date to establish the claim of the solar right.

47-3-10: transfer

Unless the document of conveyance otherwise specifies, upon the transfer of any realty on which a solar right exists or upon the transfer of any realty benefited by a filed declaration contesting a solar right, that solar right or declaration contesting the solar

right shall be transferred with the realty and shall be enforceable by the vendee in the same manner and to the same extent to which it was enforceable by the vendor. A solar right is appurtenant to the real property upon which the solar collector is situated. Nothing in this section shall be construed to prevent a person from agreeing to relinquish a solar right or a potential solar right. Nothing in this section shall affect any transfer of solar rights made prior to the effective date of the Solar Recordation Act … pursuant to Paragraph (3) of Subsection B of Section 47-3-4 NMSA 1978 or any local solar rights ordinance.

47-3-11: local authority

A. Notwithstanding any other provisions of the Solar Recordation Act or the Solar Rights Act, the governing body of a county or municipality may by ordinance regulate in whole or in part the claiming of solar rights in accordance with its powers to regulate zoning, planning and platting, and subdivisions; except that any solar right claimed pursuant to such local ordinance shall vest with respect to any property benefited or burdened by the solar right only after recordation as provided in Section 4 [47-3-9 NMSA 1978] of the Solar Recordation Act. Such local regulation shall not affect any solar right vested before the effective date of such ordinance, nor shall the local regulation affect any solar rights transfer, which vested prior to the effective date of such ordinance. In the absence of the local regulation of solar rights, the following principles shall apply in addition to those set forth in the Solar Rights Act. If the property burdened by a solar right has or could have improvements constructed to a maximum height of twenty-four feet, then the solar right shall be limited, as to that burdened property, to protecting an unobstructed line-of-sight path from the solar collector to the sun only as to obstructions located on the burdened property, which cast a shadow greater than the shadow cast by a hypothetical fence ten feet in height located on the property line of the property on which the solar collector is located. If the property burdened by a solar right has or could have improvements constructed in excess of twenty-four feet in height, but no greater than thirty-six feet, then the solar right shall be limited, as to that burdened property, to protecting an unobstructed line-of-sight path from the solar collector to the sun only as to obstructions located on the burdened property, which cast a shadow greater than the shadow cast by a hypothetical fence fifteen feet in height located on the property line of the property on which the solar collector is located. No solar right shall be obtained against property, which has or could have improvements constructed in excess of thirty-six feet in height unless so provided in a local ordinance or agreed to by contract. Unless otherwise provided by contract or local ordinance, a person may allow vegetation to grow or construct or plan to construct any improvement which obstructs the protected solar right so long as such obstruction does not block more than ten percent of the collectible solar energy between the hours of 9:00 a.m. and 3:00 p.m. Unless otherwise provided by contract or local ordinance, solar rights shall be protected between 9:00 a.m. and 3:00 p.m.

B. Nothing in the Solar Recordation Act shall be construed to limit any county or municipal ordinances concerning solar rights in effect prior to the effective date of this section.

47-3-12: indexing

A declaration filed pursuant to Section 4 [47-3-9 NMSA 1978] of the Solar Recordation Act shall be indexed by the county clerk in the grantees index under the names of the persons receiving notice in the declaration and in the grantors index under the name of the person filing the declaration.

6. CITY OF ASHLAND, OREGON

18.70 Solar Access

18.70.010 Purpose and Intent

The purpose of the Solar Access Chapter is to provide protection of a reasonable amount of sunlight from shade from structures and vegetation whenever feasible to all parcels

in the City to preserve the economic value of solar radiation falling on structures, investments in solar energy systems, and the options for future uses of solar energy.
18.70.020 Definitions

A. *Exempt Vegetation*: All vegetation over fifteen (15) feet in height at the time a solar access permit is applied for.

B. *Highest Shade Producing Point*: The point of a structure which casts the longest shadow beyond the northern property boundary at noon on December 21st.

C. *Natural Grade*: The elevation of the natural ground surface in its natural state, before man-made alterations. The natural ground surface is the ground surface in its original state, before any grading, excavation, or filling.

D. *Northern Lot Line*: Any lot line or lines less than forty-five (45) degrees southeast or southwest of a line drawn east-west and intersecting the northernmost point of the lot. If the northern lot line adjoins any unbuildable area (e.g., street, alley, public right-of-way, parking lot, or common area) other than a required yard area, the northern lot line shall be that portion of the northerly edge of the unbuildable area which is due north from the actual northern edge of the applicant's property.

E. *North-South Lot Dimension*: The average distance in feet between lines from the corners of the northern lot line south to a line drawn east-west and intersecting the southernmost point of the lot.

F. *Solar Energy System*: Any device or combination of devices or elements which rely upon direct sunlight as an energy source, including but not limited to any substance or device which collects sunlight for use in the heating or cooling of a structure or building, the heating or pumping of water, or the generation of electricity. A solar energy system may be used for purposes in addition to the collection of solar energy. These uses include, but are not limited to, serving as a structural member of part of the roof of a building or structure and serving as a window or wall.

G. *Solar Envelope*: A three dimensional surface which covers a lot and shows, at any point, the maximum height of a permitted structure which protects the solar access of the parcel(s) to the north.

H. *Solar Heating Hours*: The hours and dates during which solar access is protected by a solar access permit, not to exceed those hours and dates when the sun is lower than twenty-four (24) degrees altitude and greater than seventy (70) degrees east and west of true south.

I. *Solar Access Permit Height Limitations*: The height limitations on affected properties required by the provisions of a Solar Access Permit displayed as a series of five (5) foot contour lines which begin at the bottom edge of the solar energy system protected by the permit, rise at an angle to the south not less than twenty-four (24) degrees from the horizon, and extend at an angle not greater than seventy (70) degrees to the east and west of true south and run parallel to the solar energy system.

J. *Solar Setback*: The minimum distance that a structure, or any part thereof, can be located from a property boundary.

K. *Slope*:A vertical change in elevation divided by the horizontal distance of the vertical change. Slope is measured along lines extending one hundred fifty (150) feet north from

the end points of a line drawn parallel to the northern lot line through the midpoint of the north-south lot dimension. North facing slopes will have negative (-) values and south facing slopes will have positive (+) values.

L. *Sun chart*: Photographs or drawings, taken in accordance with the guidelines of the Staff Advisor, which plot the position of the sun during solar heating hours. The sun chart shall contain at a minimum the southern skyline as seen through a grid which plots solar altitude for a forty-two (42) degree northern latitude in ten (10) degree increments and solar azimuth measured from true south in fifteen (15) degree increments. If the solar energy system is less than twenty (20) feet wide, a minimum of one (1) sun chart shall be taken from the bottom edge of the center of the solar energy system. If the solar energy system is greater than twenty (20) feet wide, a minimum of two (2) sun charts shall be taken, one (1) from the bottom edge of each end of the solar energy system.

18.70.030 Lot Classifications

Affected Properties. All lots shall meet the provisions of this Section and will be classified according to the following formulas and table:

FORMULA I:
Minimum N/S lot dimension for Formula I = 30' 0.445 + S Where: S is the decimal value of slope, as defined in this Chapter.

FORMULA II:
Minimum N/S lot dimension for Formula II = 10' 0.445 + S Lots whose north-south lot dimension exceeds that calculated by Formula I shall be required to meet the setback in Section (A), below.

Those lots whose north-south lot dimension is less than that calculated by Formula I, but greater than that calculated by Formula II, shall be required to meet the setback in Section (B), below.

Those lots whose north-south lot dimension is less than that calculated by Formula II shall be required to meet the setback in Section (C), below.

18.70.040 Solar Setbacks

A. Setback Standard A. This setback is designed to insure that shadows are no greater than six (6) feet at the north property line. Buildings on lots which are classified as Standard A, and zoned for residential uses, shall be set back from the northern lot line according to the following formula:
SSB = H - 6'
0.445 + S
WHERE:
SSB = the minimum distance in feet that the tallest shadow producing point which creates the longest shadow onto the northerly property must be set back from the northern property line.
H = the height in feet of the highest shade producing point of the structure which casts the longest shadow beyond the northern property line.
S = the slope of the lot, as defined in this Chapter.

B. Setback Standard B. This setback is designed to insure that shadows are no greater than sixteen (16) feet at the north property line.
Buildings for lots which are classified as Standard B or for any lot zoned C-1, E-1 or M-1, or for any lot not abutting a residential zone to the north, shall be set back from the northern lot line as set forth in the following formula:
SSB = H - 16'
0.445 + S

C. Setback Standard C. This setback is designed to insure that shadows are no greater than twenty-one (21) feet at the north property line.
Buildings for lots in any zone whose north/south lot dimension is less than Standard B shall meet the setback set forth in the following formula:
SSB = H - 21'
0.445 + S

D. Exempt Lots. Any lot with a slope of greater than thirty percent (30%) in a northerly direction, as defined by this Ordinance, shall be exempt from the effects of the Solar Setback Section.

E. Lots Affected By Solar Envelopes. All structures on a lot affected by a solar envelope shall comply with the height requirements of the solar envelope.

F. Exempt Structures.

1. Existing Shade Conditions. If an existing structure or topographical feature casts a shadow at the northern lot line at noon on December 21, that is greater than the shadow allowed by the requirements of this Section, a structure on that lot may cast a shadow at noon on December 21, that is not higher or wider at the northern lot line than the shadow cast by the existing structure or topographical feature. This Section does not apply to shade caused by vegetation.
2. Actual Shadow Height. If the applicant demonstrates that the actual shadow which would be cast by the proposed structure at noon on December 21, is no higher than that allowed for that lot by the provisions of this Section, the structure shall be approved. Refer to Table D for actual shadow lengths.

18.70.050 Solar Access Performance Standard

A. Assignment of Solar Factor. All land divisions which create new lots shall be designed to permit the location of a twenty-one (21) foot high structure with a setback which does not exceed fifty (50%) percent of the lot's north-south lot dimension. Lots having north facing (negative) slopes of less than fifteen percent (15%) (e.g., 10%), and which are zoned for residential uses, shall have a north-south lot dimension equal to or greater than that calculated by using Formula I. Lots having north facing (negative) slopes equal to or greater than fifteen percent (15%) (e.g., 20%), or are zoned for non-residential uses, shall have a north-south lot dimension equal to or greater than that calculated by using Formula II.

B. Solar Envelope. If the applicant chooses not to design a lot so that it meets the standards set forth in (A) above, a Solar Envelope shall be used to define the height requirements which will protect the applicable Solar Access Standard. The Solar Envelope, and written description of its effects, shall be filed with the land partition or subdivision plat for the lot(s).

18.70.060 Variances

A. Variances to this Chapter shall be processed as a Type I procedure, except that variances granted under subsection B of this Section may be processed as a Staff Permit. (Ord. 2484 S3, 1988)

B. A variance may be granted with the following findings being the sole facts considered by the Staff Advisor:

1. That the owner or owners of all property to be shaded, sign and record with the County Clerk on the affected properties' deed, a release form supplied by the City, which contains the following information:

a. The signatures of all owners or registered leaseholders who hold an interest in the property in question.
b. A statement that the waiver applies only to the specific building or buildings to which the waiver is granted.

c. A statement that the solar access guaranteed by this Section is waived for that particular structure and the City is held harmless for any damages resulting from the waiver.
d. A description and drawing of the shading which would occur, and

2. The Staff Advisor finds that:
a. The variance does not preclude the reasonable use of solar energy on the site by future buildings; and
b. The variance does not diminish any substantial solar access which benefits a habitable structure on an adjacent lot.
c. There are unique or unusual circumstances which apply to this site which do not typically apply elsewhere.

18.70.070 Solar Access Permit for Protection from Shading by Vegetation

A. A Solar Access Permit is applicable in the City of Ashland for protection of shading by vegetation only. Shading by buildings is protected by the setback provisions of this Ordinance.

B. Any property owner or lessee, or agent of either, may apply for a Solar Access Permit from the Staff Advisor. The application shall be in such form as the Staff Advisor may prescribe but shall, at a minimum, include the following:

1. A fee of fifty ($50.00) Dollars plus Ten ($10.00) Dollars for each lot affected by the Solar Access Permit.

2. The applicant's name and address, the owner's name and address, and the tax lot number of the property where the proposed solar energy system is to be located.

3. A statement by the applicant that the solar energy system is already installed or that it will be installed on the property within one (1) year following the granting of the permit.

4. The proposed site and location of the solar energy system, its orientation with respect to true south, and its slope from the horizontal shown clearly in drawing form.

5. A sun chart.

6. The tax lot numbers of a maximum of ten (10) adjacent properties proposed to be subject to the Solar Access Permit. A parcel map of the owner's property showing such adjacent properties with the location of existing buildings and vegetation, with all exempt vegetation labeled exempt.

7. The Solar Access Permit height limitations as defined in Section 18.70.050 of this Ordinance for each affected property which is necessary to protect the solar energy system from shade during solar heating hours. In no case shall the height limitations of the Solar Access Permit be more restrictive than the building setbacks.

C. If the application is complete and complies with this Ordinance, the Staff Advisor shall accept the solar access recordation application and notify the applicant. The applicant is responsible for the accuracy of all information provided in the application.

D. The Staff Advisor shall send notice by certified letter, return receipt requested, to each owner and registered lessee of property proposed to be subject to the Solar Access Permit. The letter shall contain, at a minimum, the following information:

1. The name and address of the applicant.

2. A statement that an application for a Solar Access Permit has been filed.

3. Copies of the collector location drawing, sun chart, and parcel map submitted by the applicant.

4. A statement that the Solar Access Permit, if granted, imposes on them duties to trim vegetation at their expense.

5. The advisability of obtaining photographic proof of the existence of trees and large shrubs.

6. The times and places where the application may be viewed.

7. Telephone number and address of the City departments that will provide further information.

8. That any adversely affected person may object to the issuance of the permit by a stated time and date, and how and where the objection must be made.

E. If no objections are filed within thirty (30) days following the date the final certified letter is mailed, the Staff Advisor shall issue the Solar Access Permit.

F. If any adversely affected person or governmental unit files a written objection with the Staff Advisor within the specified time, and if the objections still exist after informal discussions among the objector, appropriate City Staff, and the applicant, a hearing date shall be set and a hearing held in accordance with the provisions of Section 18.70.080.

18.70.080 Hearing Procedure

A. The Staff Advisor shall send notice of the hearing on the permit application to the applicant and to all persons originally notified of the Solar Access Permit application, and shall otherwise follow the procedures for a Type I hearing.

B. The Staff Advisor shall consider the matters required for applications set forth in Section 18.70.070(B) on which the applicant shall bear the burden of proof, and the following factor on which the objector shall bear the burden of proof: A showing by the objector that the proposed collector would unreasonably restrict the planting of vegetation on presently under-developed property.

1. If the objector is unable to prove these circumstances and the applicant makes the showings required by Section 18.70.060(B), the Staff Advisor shall approve the permit.

2. If the applicant has failed to show all structures or vegetation shading of the proposed collector location in his application, the Staff Advisor may approve the permit while adding the omitted shading structures or vegetation as exemptions from this Chapter.

3. If the objector shows that an unconditional approval of the application would unreasonably restrict development of the objector's presently under-developed property, the Staff Advisor may approve the permit, adding such exemptions as are necessary to allow for reasonable development of the objector's property.

4. If the Staff Advisor finds that the application contains inaccurate information which substantially affects the enforcement of the Solar Access Permit, the application shall be denied.

C. Any decision by the Staff Advisor is subject to review before the Planning Commission as a Type II planning action according to the usual procedures contained in this Title. (Ord. 2775, 1996)

18.70.090 Limits On Solar Access Permits

A. No Solar Access Permit may be filed which would restrict any lot which has an average slope of fifteen (15) percent in the northerly direction.

B. A Solar Access Permit becomes void if the use of the solar collector is discontinued for more than twelve (12) consecutive months or if the solar collector is not installed and

operative within twelve (12) months of the filing date of the Solar Access Permit. The applicant may reapply for a Solar Access Permit in accordance with Chapter 18.70.070, however, the application fee shall be waived.

18.70.100 Entry of Solar Access Permit Into Register

A. When a Solar Access Permit is granted, the Staff Advisor shall:

1. File the Solar Access Permit with the County Clerk. This shall include the owner's name and address and tax lot of the property where the recorded collector is to be located, any special exceptions or exemptions from the usual affects of a Solar Access Permit, and the tax lots of the ten (10) or fewer adjacent properties subject to the Solar Access Permit.

2. File a notice on each affected tax lot that the Solar Access Permit exists and that it may affect the ability of the property owner to grow vegetation, and that it imposes certain obligations on the property owner to trim vegetation.

3. Send a certified letter, return receipt requested, to the applicant and to each owner and registered lessee of property subject to the Solar Access Permit stating that such permit has been granted.

B. If a Solar Access Permit becomes void under Section 18.70.090(B), the Staff Advisor shall notify the County Clerk, the recorded owner, and the current owner and lessee of property formerly subject to the Solar Access Permit.

18.70.110 Effect and Enforcement

A. No City department shall issue any development permit purporting to allow the erection of any structure in violation of the setback provisions of this Chapter.

B. No one shall plant any vegetation that shades a recorded collector, or a recorded collector location if it is not yet installed, after receiving notice of a pending Solar Access Permit application or after issuance of a permit. After receiving notice of a Solar Access Permit or application, no one shall permit any vegetation on their property to grow in such a manner as to shade a recorded collector (or a recorded collector location if it is not yet installed) unless the vegetation is specifically exempted by the permit or by this Ordinance.

C. If vegetation is not trimmed as required or is permitted to grow contrary to Section 18.70.100(B), the recorded owner or the City, on complaint by the recorded owner, shall give notice of the shading by certified mail, return receipt requested, to the owner or registered lessee of the property where the shading vegetation is located. If the property owner or lessee fails to remove the shading vegetation within thirty (30) days after receiving this notice, an injunction may be issued, upon complaint of the recorded owner, recorded lessee, or the City, by any court of jurisdiction. The injunction may order the recorded owner or registered lessee to trim the vegetation, and the court shall order the violating recorded owner or registered lessee to pay any damages to the complainant, to pay court costs, and to pay the complainant reasonable attorney's fees incurred during trial and/or appeal.

D. If personal jurisdiction cannot be obtained over either the offending property owner or registered lessee, the City may have a notice listing the property by owner, address and legal description published once a week for four (4) consecutive weeks in a newspaper of general circulation within the City, giving notice that vegetation located on the property is in violation of this Ordinance and is subject to mandatory trimming. The City shall then have the power, pursuant to court order, to enter the property, trim or cause to have trimmed the shading parts of the vegetation, and add the costs of the trimming, court costs and other related costs as a lien against that property.

E. In addition to the above remedies, the shading vegetation is declared to be a public

nuisance and may be abated through Title 9 of the Ashland Municipal Code.

F. Where the property owner or registered lessee contends that particular vegetation is exempt from trimming requirements, the burden of proof shall be on the property owner or lessee to show that an exemption applies to the particular vegetation.

7. VIRGIN ISLANDS

§ 1001. Short title

This act shall be cited as the "Solar and Wind Energy Systems Act."

§ 1002. Declaration of findings and policy

The Legislature of the Virgin Islands finds and declares that the prohibitive costs of electrical power and the increasing occurrences of electrical power outages in the Virgin Islands requires the Government of the United States Virgin Islands to pursue serious consideration of other energy sources. Further, the use of renewable energy sources, such as solar energy and wind energy, will help to reduce continuing dependency and reliance on depletable energy resources such as oil, natural gas, and coal. Therefore, the Legislature declares that it is in the public interest to develop and expand solar and wind energy systems to meet the present and future energy needs of the Virgin Islands. The owner of a solar or wind energy system would be permitted to negotiate for assurance of continued access to the owner's energy source. Zoning regulations would be promulgated that would encourage and protect renewable energy systems.

§ 1003. Definitions

As used in this chapter, the term "solar or wind energy system" means any system that converts, stores, collects, protects or distributes the kinetic energy of the sun or wind into mechanical, chemical or electrical energy to provide power generation for the heating of water, the heating and cooling of buildings or other structures, and other similar purposes.

§ 1004. Prohibited conveyances

(a) Any covenant, condition, or restriction contained in any deed, contract, mortgage, security instrument, or other instrument pertaining to a conveyance, sale or transfer of real property or interest therein which prohibits or unreasonably limits the installation or use of a solar or wind energy system shall be void and unenforceable.
(b) A covenant, condition or restriction shall be considered "unreasonable" for the purposes of this chapter if it significantly increases the cost and expense of the solar or wind energy system to its owner or user, or significantly decreases its efficiency, or otherwise effectively discourages the installation or use of a solar or wind energy system.

§ 1005. Energy system height limitation

Notwithstanding the provisions of Title 29, chapter 3, Virgin Islands Code, a tower used in a solar or wind energy system may exceed the height limitation of the district in which it is located by no more than one hundred (100) feet.

§ 1006. Easement for solar or wind energy system; rules and regulations

(a) For a subdivision of land for which a preliminary plot or general subdivision plan, or any other plan or data is required pursuant to the provisions of Title 29, chapter 3, subchapter II, Virgin Islands Code, the Planning Director shall also require, as a condition of approval of such plan or plans, a dedication of easements for the purpose of assuring that each parcel or unit in the subdivision shall have the right to receive sunlight or wind across adjacent parcels or units in the subdivision.

(b) The Planning Director shall issue rules and regulations to effectuate the provisions of

this chapter and shall include therein the following:

(1) Standards for determining the exact dimensions and locations of such easements;

(2) Restrictions on vegetation, buildings and other objects which could obstruct the passage of sunlight or wind through such easements;

(3) Terms or conditions, if any, under which an easement may be revised or terminated; and

(4) Considerations of cost, feasibility, contour, and configuration of the parcels or units to be subdivided.

(c) Such an easement shall not result in reducing allowable densities on any segment of a parcel or unit of a subdivision which may be occupied by a building or other structure already constructed, or presently under construction, on October 3, 1984.

8. STATE OF WISCONSIN

66.0401 Regulation relating to solar and wind energy systems

66.0401(1)

(1) Authority to restrict systems limited. No county, city, town, or village may place any restriction, either directly or in effect, on the installation or use of a solar energy system, as defined in s. 13.48 (2) (h) 1. g., or a wind energy system, as defined in s. 66.0403 (1) (m), unless the restriction satisfies one of the following conditions:

66.0401(1)(a)
(a) Serves to preserve or protect the public health or safety.
66.0401(1)(b)
(b) Does not significantly increase the cost of the system or significantly decrease its efficiency.
66.0401(1)(c)
(c) Allows for an alternative system of comparable cost and efficiency.
66.0401(2)

(2) Authority to require trimming of blocking vegetation. A county, city, village, or town may provide by ordinance for the trimming of vegetation that blocks solar energy, as defined in s. 66.0403 (1) (k), from a collector surface, as defined under s. 700.41 (2) (b), or that blocks wind from a wind energy system, as defined in s. 66.0403 (1) (m). The ordinance may include, but is not limited to, a designation of responsibility for the costs of the trimming. The ordinance may not require the trimming of vegetation that was planted by the owner or occupant of the property on which the vegetation is located before the installation of the solar or wind energy system.

236.292 Certain restrictions void
236.292(2)
(2) All restrictions on platted land that prevent or unduly restrict the construction and operation of solar energy systems, as defined in s. 13.48 (2) (h) 1. g., or a wind energy system, as defined in s. 66.0403 (1) (m), are void.

9. STATE OF FLORIDA

SOLAR RIGHTS LAW (Sections 163.04 and 718.113, Florida Statutes)

163.04 Energy devices based on renewable resources

(1) Notwithstanding any provision of this chapter or other provision of general or special law, the adoption of an ordinance by a governing body, as those terms are defined in this chapter, which prohibits or has the effect of prohibiting the installation of solar collectors, clotheslines, or other energy devices based on renewable resources is expressly prohibited.

(2) A deed restriction, covenant, declaration, or similar binding agreement may not prohibit or have the effect of prohibiting solar collectors, clotheslines, or other energy devices based on renewable resources from being installed on buildings erected on the lots or parcels covered by the deed restriction, covenant, declaration, or binding agreement. A property owner may not be denied permission to install solar collectors or other energy devices by any entity granted the power or right in any deed restriction, covenant, or similar binding agreement to approve, forbid, control, or direct alteration of property with respect to residential dwellings and within the boundaries of a condominium unit. Such entity may determine the specific location where solar collectors may be installed on the roof within an orientation to the south or within 45° east or west of due south if such determination does not impair the effective operation of the solar collectors.

(3) In any litigation arising under the provisions of this section, the prevailing party shall be entitled to costs and reasonable attorney's fees.

(4) The legislative intent in enacting these provisions is to protect the public health, safety, and welfare by encouraging the development and use of renewable resources in order to conserve and protect the value of land, buildings, and resources by preventing the adoption of measures which will have the ultimate effect, however unintended, of driving the costs of owning and operating commercial or residential property beyond the capacity of private owners to maintain. This section shall not apply to patio railings in condominiums, cooperatives, or apartments.

718.113. Maintenance; limitation upon improvement; display of flag; hurricane shutters.

(6) Notwithstanding the provisions of this section or the governing documents of a condominium or a multicondominium association, the board of administration may, without any requirement for approval of the unit owners, install upon or within the common elements or association property solar collectors, clotheslines, or other energy-efficient devices based on renewable resources for the benefit of the unit owners.

SOLAR ENERGY SALES TAX EXEMPTION (Chapter 212, Florida Statutes)

212.02 (26) "Solar energy system" means the equipment and requisite hardware that provide and are used for collecting, transferring, converting, storing, or using incident solar energy for water heating, space heating, cooling, or other applications that would otherwise require the use of a conventional source of energy such as petroleum products, natural gas, manufactured gas, or electricity.

212.08 (hh) Solar energy systems. Also exempt are solar energy systems or any component thereof. The Florida Solar Energy Center shall from time to time certify to the department a list of equipment and requisite hardware considered to be a solar energy system or a component thereof.

SOLAR ENERGY STANDARDS ACT (Section 377.705, Florida Statute)

377.705 Solar Energy Center; development of solar energy standards.

(1) SHORT TITLE. This act shall be known and may be cited as the Solar Energy Standards Act of 1976.

(2) LEGISLATIVE FINDINGS AND INTENT

(a) The Legislature recognizes that if present trends continue, Florida will increase present energy consumption six fold by the year 2000. Because of this dramatic increase and because existing domestic conventional energy resources will not provide sufficient energy to meet the nation's future needs, new sources of energy must be developed and applied. One such source, solar energy, has been in limited use in Florida for 30 years. Applications of incident solar energy, the use of solar radiation to provide energy for water heating, space heating, space cooling, and other uses, through suitable absorbing equipment on or near a residence or commercial structure, must be extensively expanded. Unfortunately, the initial costs with regard to the production of solar energy have been prohibitively expensive. However, because of increases in the cost of conventional fuel, certain applications of solar energy are becoming competitive, particularly when life-cycle costs are considered. It is the intent of the Legislature in formulating a sound and balanced energy policy for the state to encourage the development of an alternative energy capability in the form of incident solar energy.

(b) Toward this purpose, the Legislature intends to provide incentives for the production and sale of, and to set standards for, solar energy systems. Such standards shall ensure that solar energy systems manufactured or sold within the state are effective and represent a high level of quality of materials, workmanship, and design.

(3) DEFINITIONS

(a) "Center" is defined as the Florida Solar Energy Center of the Board of Regents.

(b) "Solar energy systems" is defined as equipment which provides for the collection and use of incident solar energy for water heating, space heating or cooling, or other applications which normally require or would require a conventional source of energy such as petroleum products, natural gas, or electricity and which performs primarily with solar energy. In such other systems in which solar energy is used in a supplemental way, only those components which collect and transfer solar energy shall be included in this definition.

(4) FLORIDA SOLAR ENERGY CENTER TO SET STANDARDS, REQUIRE DISCLOSURE, SET TESTING FEES

(a) The center shall develop and promulgate standards for solar energy systems manufactured or sold in this state based on the best currently available information and shall consult with scientists, engineers, or persons in research centers who are engaged in the construction of, experimentation with, and research of solar energy systems to properly identify the most reliable designs and types of solar energy systems.

(b) The center shall establish criteria for testing performance of solar energy systems and shall maintain the necessary capability for testing or evaluating performance of solar energy systems. The center may accept results of tests on solar energy systems made by other organizations, companies, or persons when such tests are conducted according to the criteria established by the center and when the testing entity has no vested interest in the manufacture, distribution or sale of solar energy systems.

(c) The center shall be entitled to receive a testing fee sufficient to cover the costs of such testing. All testing fees shall be transmitted by the center to the Chief Financial Officer to be deposited in the Solar Energy Center Testing Trust Fund, which is hereby created in the State Treasury, and disbursed for the payment of expenses incurred in testing solar energy systems.

(d) All solar energy systems manufactured or sold in the state must meet the standards established by the center and shall display accepted results of approved performance tests in a manner prescribed by the center.

Solar America Board for Codes and Standards

www.solarabcs.org

Attachment 2

Protecting Solar Energy Systems from Shading (Rappe, 2009)

Protecting Solar Energy Systems from Shading:
Solar Access Policy Options for Seattle and Washington

Kirk Rappe
Seattle City Light

For the Seattle Solar America City Initiative
October 27, 2009

Table of Contents

I. Introduction

The Seattle Solar America City Initiative, led by Seattle City Light, is researching and acting on ways to eliminate barriers for Seattle residents to the solar market. The immediate barriers to increased solar generation in Seattle are the cost and difficulty financing, the high number of rental versus owned units in Seattle and general knowledge that solar energy works in Seattle (Moynihan 2009). One important barrier, particularly as solar energy becomes even more widely used, is obtaining guaranteed access to sunlight.

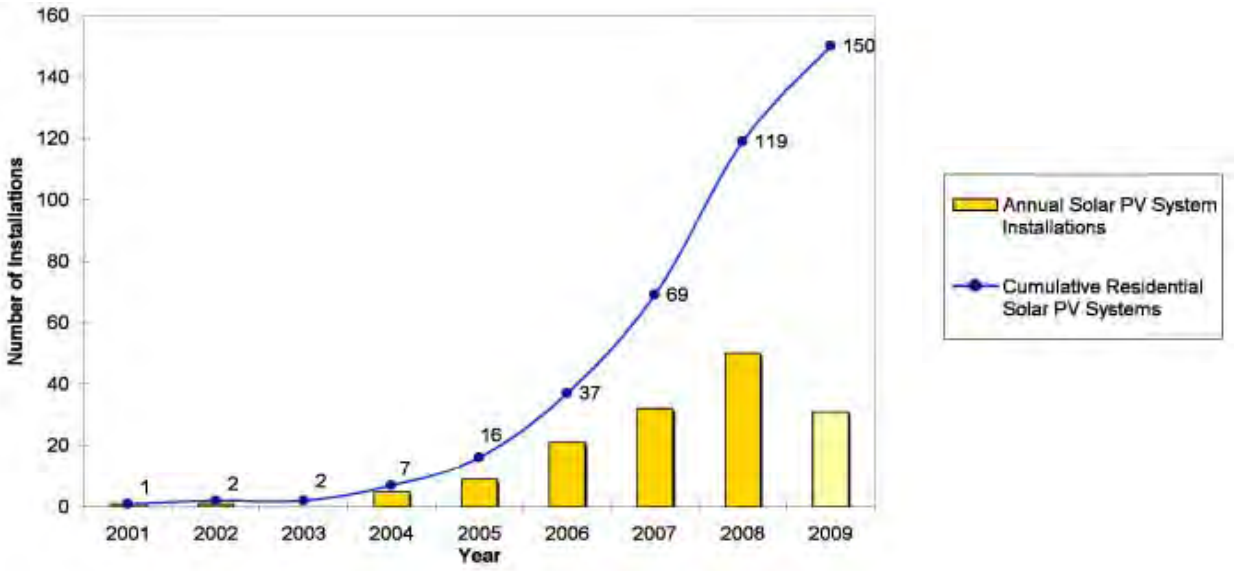
In Seattle direct access to sunlight must be maintained for at least 14 years to ensure a solar energy system recovers the installation costs and can continue to generate emissions-free and non-polluting electricity. Due to climate and latitude, Seattle solar collectors require 14 to 20 years to reach simple payback, somewhat longer compared to other parts of the United States (Denholm 2008). A commitment to solar energy is a long-term investment.

In a dynamic city like Seattle, threats to direct sunlight can come from tall trees and buildings that cast shadows. Sunlight in North America falls at an angle from the south so a large object between the sun and a solar collector may cast shadows that cross property lines and prevent energy collection. Trees are planted and tall buildings are constructed frequently in rapidly growing Seattle. In a growing urban environment like Seattle, solar collector owners take a risk that something may be built or grow to obstruct sunlight to their investment.

Seattle continues to experience a rapid increase in the number of installed solar energy systems (see figure 1 below). Conflicts between solar collector owners and adjacent property owners are inevitable as the number of installed systems rise in the coming years (Feldman and Marks 2009). To head off this conflict, projects such as the canopy

preservation and enhancement program (Seattle reLeaf), urban village and growth management goals and the Seattle Solar Initiative should be coordinated. This paper examines the legal and geographical barriers to protecting solar access in Seattle and ways to protect solar access for existing and future solar collector installations.

Figure 1 – Residential Solar Photovoltaic Systems in Seattle



*2009 installation numbers are only through July of that year.
Source: Seattle Net Metered Accounts, Seattle City Light, 2009

II. The Legal and Physical Landscape

Legal History

English common law includes a "Doctrine of Ancient Lights" that prevents an adjacent owner or occupier of a parcel from building or placing anything on their property that obstructs sunlight to the subject property. This goes into effect when the subject property's building window receives uninterrupted sunlight for about twenty years (McCann-Kettles 2008).

In the United States the foundation of property rights is derived from the 5th Amendment and subsequent Supreme Court interpretations. Although based in English common law, United States common law does not recognize the Doctrine of Ancient Lights. Several cases in the 19th century repudiated the Doctrine of Ancient Lights on the grounds it would hinder economic development.

The most significant repudiation was from the Florida Third District court in 1959. Fontainebleau Hotel Corp vs. Forty-Five Twenty-Five Inc, pitted the development right of the Fontainebleau hotel versus the claimed right to sunlight to the Eden Roc Hotel's beachfront and pool area. According to Forty-Five Twenty-Five Inc. (the company that owns Eden Roc), the proposed 14-story addition would block sunlight in the winter months making it unfit for guests. Moreover, Eden Roc alleged the Fontainebleau tower was being built out of malice towards Eden Roc's president (McCann-Kettles 2008).

In deciding the case, the Third District asserted:

- A property owner can put their property to any legal use as long as it does not injure the lawful rights of another (create a nuisance).
- A landowner does not have any legal right to the free flow of air or light across the adjoining land of a neighbor.
- The English Doctrine of Ancient Lights has been repudiated in several other states and does not have standing in Florida.
- Because there is no legal right to sunlight from adjoining land, there is no cause for a nuisance claim or monetary or injunctive (preventative) action by the courts.

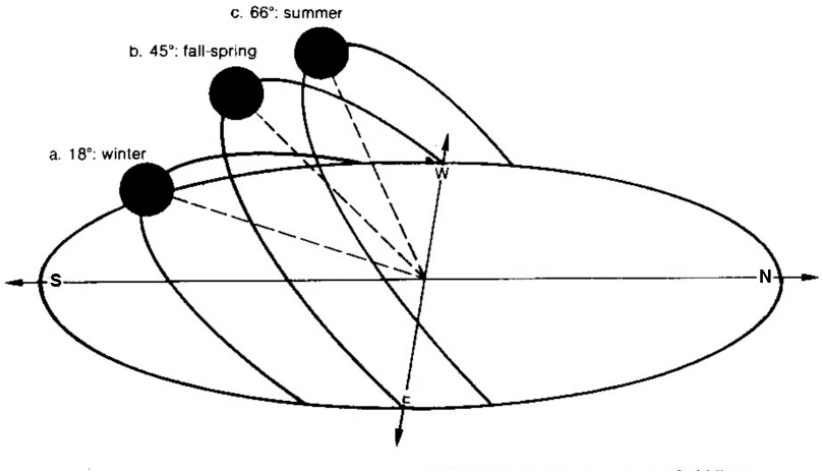
Characteristics of the Solar Resource

These assertions re-affirmed that land owners property rights are bounded by the property lines and extend perpendicular to the ground up into space and down into the depths of the earth (United States v. Causby 1946). As mentioned in the introduction,

sunlight does not fall from directly overhead, but crosses over other properties before reaching a solar collector, sometimes at a very acute angle. This physical property of sunlight and legal limits of property rights pose a challenge to protecting sunlight access for solar energy generation.

In Seattle, the altitude of the sun in the sky (and therefore the extent of shadows across a property) ranges from 18 degrees above the southern horizon at noon in winter (December 21), to 66 degrees above the southern horizon at noon in the summer (June 21). Figure 2, below, shows this visually:

Figure 2 - Solar altitude for Seattle (47.6 degrees north latitude)



Source: Seattle Solar Potential Study, City of Seattle, 1981

A general rule of thumb is for greatest year-round energy collection the optimum tilt angle for solar energy systems is to tilt the collector at an angle equal to latitude. Tilt angles for solar collectors is measured from zero degrees (a collector laid flat) to 90 degrees (perpendicular to the ground or a flat roof). In Seattle, most of the solar resource is available in the summer months, so an angle closer to 30 degrees (less than Seattle's latitude) is recommended for greatest solar energy generation. Tilt angles higher or lower than 30 degrees are better for greater winter or summer collection

respectively. For example, solar hot water systems are usually tilted at a steeper angle than solar PV systems because the hot water is needed more in the winter months.

For solar PV, another reason for a shallower angle is the potential for net metering. A solar PV owner may realize greater net generation in the summer months (solar electricity generation minus household electricity use) when electricity consumption is lower, than in winter. Most solar PV systems receive a credit for excess electricity generated and fed back to the grid (Gluckman, Solar Energy Facts 2009).

The most common location for a solar collector is on the roof of a home or business. In Seattle, collector *orientation* (compass direction) can vary up to 90 degrees from true south decreasing generation potential by up to 25%. As noted earlier, for Seattle the ideal *tilt angle* is 30 degrees (from horizontal, i.e. laid flat), but even a tilt angle of 72 degrees to capture the most sunlight available at the winter solstice when the sun is lowest in the southern sky reduces generation by only 17%. Orientation limits generation more than tilt angle, but even a collector oriented due east (90 degrees from true south) can generate 77% of a collector oriented due south (U.S. Department of Energy, 2009). This is good news since the existing roof angle or orientation may be what a homeowner is stuck with. Additional cost, roof weight, poor aesthetics and wind damage susceptibility may prohibit adding a supporting frame to modify collector tilt or orientation.

III. Causes of Shading

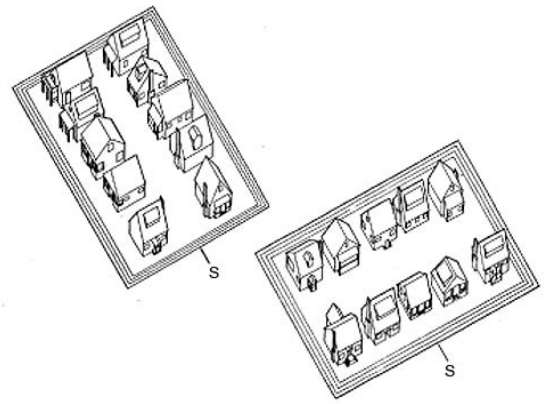
In Seattle the three greatest physical barriers to sunlight are vegetation, particularly trees, adjacent buildings and hills. Factors in assessing the extent of shading on a rooftop are:

- Vegetation height and distance from collector site
- Building height, setback and distance from collector site
- Hill height and orientation
- Slope of the land

- Size of subject parcel
- Setback distance of building on subject parcel
- Rooftop items not subject to height limits

A 1981 study of single-family solar potential categorized properties by lot orientation to assess causes of shading (City of Seattle 1981). Lot orientation, a significant factor in determining the cause of shading, is predicted by the direction of the long axis of a city block. For example, homes that have east-west front and rear yards are on "north-south oriented blocks" (N-S blocks) and homes with north-south front and rear yards are on "east-west oriented blocks" (E-W blocks). The study emphasized three categories of lot orientation: Single-family (SF) lots on the north side of an E-W block, SF lots on the south side of an E-W block and SF lots on the east or west side of a N-S block. The properties surveyed were studied for shading at the spring equinox, the annual half-way point between the highest and lowest sun position in the sky.

Figure 3: North-South and East-West Oriented Blocks



Source: Seattle Solar Potential Study, City of Seattle, 1981

Trees and Vegetation

According to the study, trees on the subject property and on neighboring properties are the most significant causes of rooftop shading on single-family detached homes in Seattle (City of Seattle 1981). The 1981 study is probably outdated with regard to the characteristics of shading caused by trees. The particulars, such as what tree species

and where they are located (on or off site) may be different today than 30 years ago. Yet, recent interviews conducted by this author with local solar installer also identified trees as the greatest shading source in Seattle (Smithson and Burton 2009) (Owens 2009).

The study says that on-site deciduous trees accounted for the most *wall* shading with 25-50% of Seattle properties shaded) and on-site and off-site evergreens accounted for the most *rooftop* shading at 20-40% of Seattle properties (both depending on lot and block orientation) (City of Seattle 1981).

Tree and vegetation height and distance from a collector are primary factors in determining shading. Common deciduous and evergreen trees in Seattle reach heights of 150 – 200 feet for evergreens like the Douglas fir and 145 feet for deciduous species like the big leaf Maple or Alder (City of Seattle 2007). Smaller lot sizes mean that off-site trees create as much of a problem as on-site trees. 33% of Seattle's single-family detached parcels are 5,000 square feet or less and 59% are 5,000 - 10,000 square feet. The average size of a single family lot is about 6,400 square feet (Staley 2009). Larger lots (zoned 7,200 or 9000 square feet) are better for solar access because shading by trees is more likely on-site and their removal decided by the solar system owner (City of Seattle 1981).

Compared to other obstructions, trees pose a unique challenge to solar access. Unlike structures that are usually static, trees grow over time. Trees are also comparatively easier and cheaper to install. Finally trees, particularly evergreens, offer additional ecological benefits beyond aesthetics and shading – in Seattle these benefits include rainfall collection, flood prevention and soil stabilization during Seattle's wet winters as well as providing habitat and reducing CO2 in the atmosphere (McPherson, et al. 2002).

Addressing Trees and Vegetation in Solar Access Laws

None of the access laws surveyed mandate cutting down existing trees to create solar access. Rather, the focus is on preserving existing solar access from shading once a solar collector is in place. Only easements and restrictive covenants (described later) usually protect from tree shading, by requiring a tree owner to trim or cut down a tree that grows to a height that blocks solar access (Hayes, Out of the Shadows 1979). In California, the solar access law originally prevented any tree or shrub from casting a shadow greater than 10 percent of the solar collector surface. Any violation was handled as a public nuisance and removal or trimming of the vegetation was authorized (Feldman and Marks 2009). In 2008 the law was amended so that it does not apply to trees or shrubs growing prior to the installation of the collector, replacement of existing trees when they die or are removed for health and safety reasons, or a tree or shrub protected by a local ordinance (California Legislature 2008) (Anders, Grigsby and Adi Kuduk 2007). The California solar shade law prohibits planting new trees, not replacement trees, which will shade solar collectors.

Buildings and Structures

Wall-shading is not as great a concern for solar PV or hot water systems as roof shading, but for homes on N-S oriented blocks the study found that wall shading is a problem because of narrow side yards (often 10 feet wide). Seattle zoning rules allow a single-family zoned property to build up to 35 feet high (Seattle Department of Planning and Development 1999). Since much of Seattle's' single-family stock is quite a bit shorter than the 35 foot maximum and often similar in height to neighboring single-family homes, roof shading only becomes a problem when a neighbor to the south adds height to their single-family structure (Staley 2009).

Many single-family detached properties are adjacent to designated urban village areas or commercial, neighborhood commercial, low-rise and mid-rise multifamily parcels (Seattle City Council 2005). Limiting height to protect solar access for single-family

homes could be particularly problematic in these areas. The Seattle comprehensive plan calls for increased density in urban villages to reduce urban sprawl and automobile travel distances (which emit global warming pollutants) (Seattle City Council 2005). Requiring extensive solar access, especially for single-family detached homes, would go against local and statewide growth management efforts and probably be difficult to defend in court.

Limiting neighboring single-family home height to protect long-term solar access from shading is a potential problem on several fronts. First, compensation for loss of development rights may be required adding cost to a solar energy system. Second, broader urban growth goals may be threatened by limiting increases in future building heights. Third, abuse of solar access protection is possible if an ordinance is not carefully constructed (Hayes 1979).

IV. Existing Washington State and Seattle Solar Shading Laws

Most of Washington State's solar access laws were, like many other states, adopted in the late 1970's. Statutes that focus on allowing placement and installation of solar collectors are often labeled as solar access protections, but for this paper the meaning of 'solar access' is focused squarely on protecting access to sunlight. Washington statutes authorize private easements for solar access and enables local governments to draft even stronger protections.

RCW 36.70.350 enables local governments to include a "solar energy element for encouragement and protection of access to direct sunlight for solar energy systems." Under Growth Management rules, development regulations must be consistent with the comprehensive plan (Washington State Legislature 1994). Inclusion of a solar energy element would require modification of zoning to protect solar access as desired by the city's legislative branch. Also, a solar energy element or statement of support for solar access in the comprehensive plan adds weight to any subsequent official action in

protecting solar access (Department of Commerce and Planning Association of Washington 2009).

RCW 35.63.080 stipulates that a local council or board may regulate or restrict the location and use of buildings. The statute explains the features that may be regulated, "and may encourage and protect access to direct sunlight for solar energy systems." This statute allows local governments to establish development regulations for future community growth but does not ensure solar access protection for existing buildings.

The third state statute is the Washington Solar Easement Law (RCW 64.04.140) enacted in 1979. By far the most substantial solar access law in the state, the Washington Solar Easement Law allows parties to enter into solar easements voluntarily to protect access to direct sunlight. The majority of solar access protection mechanisms in 34 states are a form of solar easement law.

The statute defines terms including 'solar energy system' and 'solar easement' and lists the required elements in any easement contract. As in most states with solar easements, the easements run with the land – that is, they never expire unless explicitly stated in the easement contract. Any breaching of the terms of the contract may be compensated through the courts by actual damages or an injunction. The terms and elements include:

- A description of the real property subject to the easement and benefitting from the easement.
- A description of the extent of the easement. May be described by the vertical and horizontal angles, in degrees, at which the solar easement extends over the property, or height of the easement over the property, or a prohibited shadow pattern, or other method that provides reasonably certain guidance.

And *may* include:

- The terms or conditions under which it is terminated.
- A provision for compensation to solar collector owner in the event sunlight access is blocked by structures or vegetation on subject property.

Another attempt to protect solar access in Washington died in a legislature subcommittee in the late 1970's. The law would have created a system very similar to the New Mexico Solar Rights and Solar Recordation Acts (described later) that passed New Mexico's legislature at about the same time (Goble 1977).

V. Common Solar Access Laws

During the energy crises of the 1970's energy policy researchers considered ways to encourage renewable energy technologies. In the area of land use planning, lawyers and planners considered many different ways to protect existing solar access and create guidelines to protect future access – such as in new urban developments or undeveloped land. The planning and legal remedies generally fall into two categories: lot-by-lot protection and area-wide protection.

Under lot-by-lot remedies, a solar collector owner must take the initiative to protect solar access. In most laws, access is protected only when a solar collector is installed, rarely before. To protect future solar access, area-wide remedies are required such as solar zoning or development regulations. Unlike area-wide access protection, lot-by-lot access is ultimately a private affair and not easily controlled or shaped by government action. Lot-by-lot protections include solar easements and solar permits and rights.

Solar Easements

By far the most common state-level solar access protection, twenty-nine states have adopted a form of solar easement (North Carolina State University 2009). Washington

state's law, RCW 64.04.140, is very similar to those in other states including: requiring the easement to be in writing, being privately negotiated, specific terms and conditions under which the easement will be granted or terminated and a description of the area on the subject parcel beyond which no shading can occur.

Solar easements have several limitations and advantages. Some limitations reflect high transaction costs: time notifying and negotiating with neighbors, hiring a lawyer to draft the easement, getting the county land office to record the easement. Others add financial costs to the project such as paying a neighbor for the right to receive sunlight across their property and the potential for a neighbor to negotiate in bad faith (Eisenstadt 1982).

Table 1: Solar Easements

Limitations	Advantages
Neighbors have comparative advantage in negotiations.	Simplest and least cost to administer.
May need to negotiate with multiple neighbors.	Easily shaped to fit individual site requirements.
May add a "fuel cost" to solar collector system.	May protect from tree shading.
Transaction costs often high.	
Potential windfall to "burdened" landowner.	
Easement not always recorded by county land office.	
Ineffective in protecting areas for future solar collector installation.	

There are fewer advantages than limitations to a solar easement law for a solar collector owner (see Table 1). One is that there are no requirements for forms or approval of a board or inspection of the site by city employees. This is a positive for overstretched city governments, but actually may make it harder for a solar collector owner to get a neighbor to negotiate in good faith. Easements are also easily modified to fit particular site characteristics. This is particularly helpful for oddly shaped or hillside north-slope lots (Hayes, Solar Access Law 1979).

Solar Permits and Rights

Three states: California, New Mexico and Oregon have enabled the creation of a solar right permit system that can be sold or traded. A solar right provides protection from certain types of shading by creating a solar easement on adjacent properties. However, instead of paying for the easement, the solar right permit creates a right to sunlight to the applicant that can then be sold or kept. New Mexico's solar permit system, considered the most extensive, is the only one of the three that protects from shading by buildings. The others apply only to vegetation (North Carolina State University 2009). In Ashland, Oregon and Santa Cruz County, California, alternative provisions such as solar setbacks keep new buildings from shading adjacent structures.

After a solar permit application is processed, the local government notifies neighbors of the application and they have between 30 and 60 days to file an objection. If there is none, the solar right is granted. If a neighbor does object, there is a procedure for adjudicating the dispute through the local government's planning department or executive branch. According to Melvin Eisenstadt, mechanical engineer and lawyer, the grounds for denial are a critical element. He suggests the Environmental Law Institute's model solar permit system that includes only two reasons for denial: 1) the objecting landowner already has building plans underway or 2) the solar access permitted would unreasonably restrict development.

In Oregon, the state legislature did not create a statewide solar rights law, but authorized local governments to create a solar permit system. In the case of Ashland, Oregon, the permit system only covers trees and vegetation. Building development is regulated through solar setbacks. The solar setback law applies to all lots in the city regardless of the existence of a solar collector on neighboring property – but it has three separate standards and exemptions to protect development rights (City of Ashland 1981).

Ashland's solar setback law is very similar to the solar fence concept discussed later. The main difference is that this solar setback law incorporates lot slope in the calculation of building setback. The Boulder, Colorado solar fence law assumes a level lot so drafting site plans showing shading is much easier (although if the lot *does* have a slope the site plan drafter is instructed to contact the planning department). In both laws, shadows cast by buildings that are taller than a defined number of feet at the north property line are prohibited. In the case of Ashland the limit is 6 feet for residential zones and 16 feet for commercial. In some cases there are exceptions for residential buildings on sloping lots (City of Ashland 1981).

Larry Geradina of Ashland's Conservation Division said that according to the ordinance any tree less than 15 feet tall that shades a solar collector can be removed. Existing trees taller than this height cannot be removed. Also, a solar collector must be installed and a permit obtained. He said that permits and easements are rarely used (he knows of none in Ashland for solar access) as most property owners compromise and remove trees before the dispute gets that far. Most property owners do not want an easement limiting future development because the fear it will affect their home sales price (Geradina 2009).

New Mexico's Solar Rights and Solar Recordation Acts are the most comprehensive of the three states and are based on western water rights and law of first appropriation.

According to John Bucholz, Albuquerque's Green Path Administrator, the City of Albuquerque's solar rights act, based on the state act, causes more problems than it solves. He says the Albuquerque solar access ordinance is often used to block or slow development rather than protect solar access.

New Mexico's solar rights law is based on western water rights law. Western water rights is a body of law developed in the 19th and 20th centuries based on settler traditions of determining who has the right to the use of water in the arid western United States. There are three requirements to New Mexico's solar rights act that parallel western water rights:

1. Prior appropriation – first in time, first in right. Whoever "uses" sunlight first be it a solar collector owner or adjacent development or tree, gets absolute right to use it.

2. Beneficial use – the sunlight must be used for a beneficial use, as defined in the law.

3. Transferability – the right must be freely transferrable and saleable.

According to some scholars, western water rights as a model for solar rights, is an attractive approach because of the similarities between water and sunlight resources. Sunlight, like water, flows unimpeded across multiple properties. Sunlight can be captured to an extent that it is unavailable to another landowner – similar to water. Finally, this system of law treats water as an unlimited resource like sunlight (even though our present understanding is that water resources *are* limited). There is already an extensive water rights case law that could serve as a model for adjudicating solar access disputes (White 1976).

But there are problems with this analogy. First, sunlight affects far more properties than riparian corridors. If not constructed carefully, a solar access permit system could be challenged as violating the due process clause of the Constitution or being a

regulatory taking of private property. For instance, a landowner could construct a "solar doghouse" on the south property line and effectively prohibit any development to the south. Based on prior Supreme Court rulings, this could be deemed a taking of private property. To prevent abuse and support constitutionality, solar rights laws must provide restricted property owners a procedure to get a fair hearing of their grievances and include size and/or location requirements of the collector to prevent installations designed to curb urban development.

Table 2: Solar Permits and Rights

Limitations	Advantages
More administrative resources required.	Clear permit and dispute processes.
Prior appropriation (first in time, first in right) may prevent future solar access.	Exceptions to protect property rights: Dispute process and ability to trade, buy or sell right.
Potential for abuse if law not designed carefully.	No additional monetary cost to solar owner.
Limited or no protection from tree shading.	Comparative negotiating power in favor of collector owner.
Ineffective in protecting areas for future solar collector installations.	

Solar Zoning

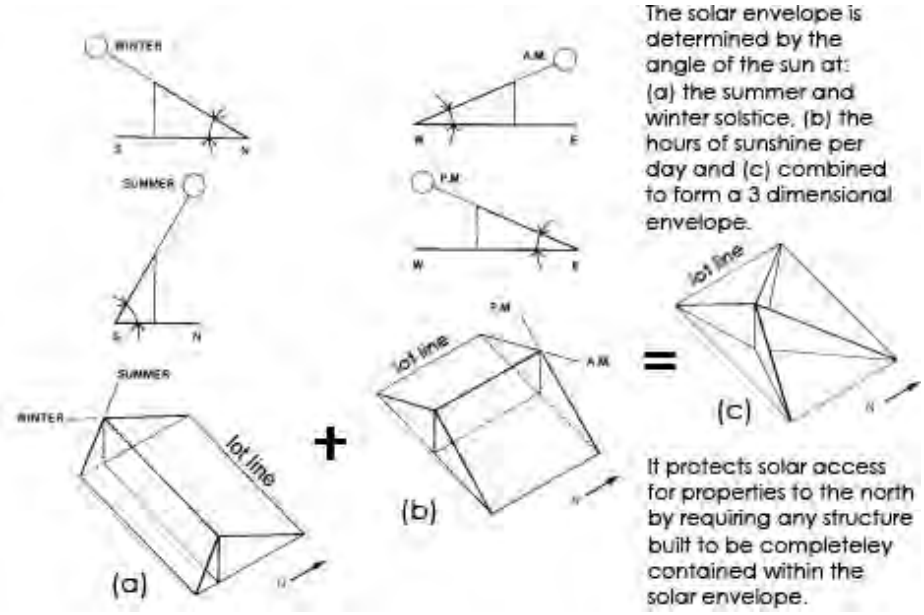
Solar zoning is an area-wide solar access protection that commonly uses three methods to define the maximum build out areas on parcels. These methods are the "solar envelope," "solar fence," and simple height and setback rules. Unlike lot-by-lot protections, solar zoning may be defined before installation of solar collectors or even the subdivision of parcels. It also protects solar access for future use. Solar zoning uses defined spatial boundaries to protect solar access before any new, replacement or additional structure is built. Any of the three methods of solar zoning can be modified

to protect access for desired times of the year or day. The greatest challenge is expressing the boundaries of the solar zone in a way that is easy for property owners and public officials to visualize.

The "solar envelope" was developed by University of California Professor Ralph Knowles and defines an area over a parcel based on the position of the sun in the sky during the times of day and year solar access is desired (Knowles 1981). Areas on the south side of a parcel can accommodate taller buildings than the north side.

Solar envelope volume varies with the latitude of the parcels. In California, where position of the sun at the winter solstice is relatively high in the sky, the solar envelope doesn't always severely reduce building height. Due to the low angle of the sun in the winter sky at 47 degrees latitude, a solar envelope system based on the winter solstice could severely reduce building height limits in Seattle. An alternative is to only define the solar envelope for the summer solar resource, making the fall equinox the limiting angle.

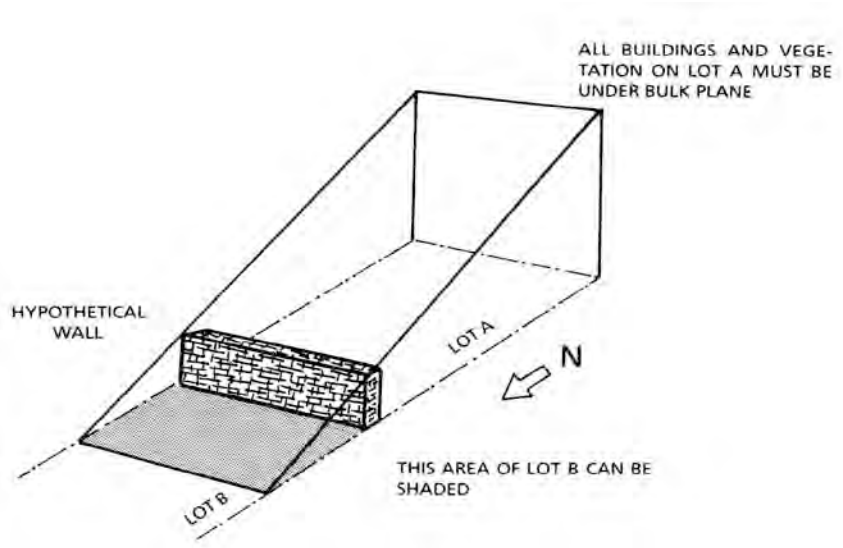
Figure 3: Solar Envelope



Source: Sun Rhythm Form, Ralph Knowles, 1981

Solar zoning may also be defined by using a "solar fence" (see Figure 4). A solar fence is an imaginary fence of a specific height along the south property line of a parcel. A neighboring structure cannot cast a shadow at any time of the year that would be greater than the imaginary fence. Like solar envelopes, the time of day or year that a structure cannot cast a shadow longer than the solar fence may be modified to reduce the negative impact on neighboring properties. The solar fence method has the advantage of being simple and easy to for either property owner to assess by simply erecting a pole of the specified height at the south property line and see if the neighboring structure casts a shadow longer than the pole.

Figure 4: Solar Fence



Source: Solar Access Law, Gail Boyer Hayes, 1979

The only city to use this method of solar zoning is Boulder, Colorado. Boulder has established three solar access areas in the city where new construction must follow the solar fence guidelines and be oriented on the lot to minimize shading on other lots. Lots in solar access area 1 are protected by a 12 foot high solar fence, solar access area 2 zones specify a 25 foot high fence and solar access area 3 is protected by the solar access permit process (much like in California and New Mexico, described above).

When applying for a building permit, a shadow analysis must be completed and submitted to the Boulder planning department. The analysis is a drawing of the proposed structure showing shading by lines drawn representing the extent of shadows at 10:00am, 12:00 noon, and 2:00pm at the winter solstice. The shadow pattern cannot shade the lot to the north to a greater degree than the solar fence prescribed for that solar access zone (City of Boulder 1981).

Finally, simple modifications to height and setback requirements may be adequate to protect solar access. From the standpoint of clarity, this is perhaps the most attractive option. It is easier for property owners to visualize than a solar envelope or the angles and boundaries of a solar right easement. The main downsides are that height and setback rules do not account for topography and either maximum solar access or developable building volume may be sacrificed for clarity.

Setback and density changes that restrict development on existing parcels (essentially a form of down-zoning) could be politically prohibitive. Single-family detached parcels (SF 9500, 7000 and 5000) may be built up to a height of 35 feet. Most of Seattle is already built out, so the changes would be seen as depriving current owners of housing stock of future value. Homeowners would invariably protest this change as depriving them of development rights and city government would not want to downzone if it increases housing costs or reduce density (Hayes 1979).

Subdivision Regulations

A second set of area-wide solar access policies is subdivision regulations and planned unit development ordinances. These regulations and ordinances are used by local governments for new developments and are of limited use on existing parcels. Unlike zoning, subdivision regulations and planned unit development ordinances influence the creation of parcels, roadways and public spaces, and hence have a larger impact on urban form (Hayes 1979). In already urbanized cities such as Seattle, these regulations

are useful for redevelopment of older industrial or auto-oriented commercial properties but have little impact on existing single-family or downtown high-rise neighborhoods.

Table 3: Solar Zoning

Limitations	Advantages
High level of political resistance. Ineffective in urbanized areas. Zoning may be changed in the future. Almost never protects from tree shading. May increase urban sprawl. May go against goals of the Growth Management Act.	Protects areas rather than lots. Protection for *future* solar energy use. Variety of ways to determine height and setback limits. Avoids use of courts or compensation to insure solar access.

Subdivision regulations are authorized by state statute and focus on protecting environmental critical areas based on the State Environmental Policy Act. Seattle subdivision regulations protect designated riparian and wildlife corridors, shoreline habitat, wetlands and steep slopes. Development must be done outside of a 100-foot buffer of the designated areas. Any property that is subdivided for development must take this into account and set aside the protected land.

Subdivision regulations make no mention of protecting solar access. In urban areas, changing block orientation and street width may be impractical, however, public open space and environmentally critical areas (if in the right location) could serve as solar access buffers (Hayes 1979). Seattle subdivision regulations could be amended to include requirements for east – west streets and east – west oriented buildings when practical, use of public open space and easements to the south of developments to

protect solar access, and perhaps include vegetation controls (although vegetation controls would be politically difficult in Seattle).

There are several limitations to subdivision solar access regulations. Voluntary solar access regulations (as they are often constructed) may not be as effective as mandatory protection. In a mature, urbanized city like Seattle, subdivision regulations only affect a very small number of redeveloping properties (Hayes 1979). Finally, restrictive covenants or agreements would be needed to prevent future structural additions or new trees from causing shading on adjacent properties (Hayes 1979).

The Seattle Municipal Code describes subdivision plat requirements (detailed schematics of a proposed subdivision) in section 23.22.020 – 23.22.088. In particular, the hearing examiner is authorized to determine if a subdivision meets requirements for public facilities and dedications including open spaces that are, "designed to maximize the retention of existing trees." Adding a requirement to also provide for solar access would be difficult on some plats, especially with the requirement to retain existing trees.

Section 23.33.100 specifies subdivision design standards but does not include any requirements for orienting streets, lots or buildings on lots for maximum solar access. Nor does it mention protection of trees.

Planned Unit Developments

Planned unit developments are a flexible way for a city and developers to promote innovative land development patterns. Unlike subdivisions that focus on existing large lots, planned unit developments may cover much larger areas and multiple lots. There are three types of planned unit developments authorized by the Seattle Municipal Code: 1) Clustered Housing Planned Developments (CHPD), 2) Planned Residential

Developments (PRD) and 3) Planned Community Developments (PCD) in downtown zones.

None of the planned unit development (PUD) designations specifically mention solar access. The Revised Code of Washington authorizes local governments to craft PUD ordinances, but gives local government's wide latitude in deciding the specifics (RCW 35.14.040).

Amendments to the Seattle CHPD, PRD, or PCD ordinances could encourage using natural buffers or public open space to preserve sunlight access (particularly clustered housing and community developments). In downtown zones, PCDs could be encouraged to balance density and solar access – again using public open space to facilitate direct sunlight access to building rooftops, but also to encourage the use of the solar envelope to smooth building height transitions from south to north

Table 4: Subdivision Regulations

Limitations	Advantages
Few developments use PUD or subdivision regulations in Seattle.	Greater impact on urban form than zoning (may adjust street orientation and width).
Once subdivision sold, regulations no longer apply.	Politically more acceptable.
Tree's already extensively protected in PUD ordinance.	Fewer administrative resources needed.
May increase sprawl or prevent tree planting in new developments.	Administrative rather than judicial remedy.
Solar access gained must be preserved by covenant.	Clustering housing may minimize conflicts between solar energy systems and trees.

For Clustered Housing Planned Developments and Planned Residential Developments, tree planting and future development could be carefully regulated (perhaps through easements) to prevent residents from building additions or planting trees that would shade solar access. A solar site plan could designate recommended tree planting areas well away from the south roof and face of residential units (Jaffe and Erley 1980).

VI. Other Approaches

Nuisance Law

Nuisance law and eminent domain are not very helpful for protecting solar access. First, nuisance law is often unpredictable because there is no adequate universal definition of a "nuisance." A plaintiff would have to show intentional interference with solar access as well as real (measurable) interference and substantial harm. Since there is no established right to sunlight, obstruction of sunlight would likely not be considered a nuisance.

Second, land use nuisance law is reactive and cannot prevent conflicts. Instead of adjudicating disputes before a nuisance arises, nuisance law only applies to existing land use conflicts. It is often difficult to grant injunctive relief from a land use nuisance in a developed area because relocation or demolition costs would be prohibitive.

Zoning was established precisely because nuisance law was inadequate in protecting property owners from nuisance industries in the early 20th century. Nuisances are determined on a case by case basis and create much uncertainty around what will and will not be deemed a nuisance. Zoning is a collective community decision, based on legislative decree, and is preferable for protecting property and community values (such as solar access).

Eminent Domain

Gail Boyer Hayes also suggests using eminent domain to purchase solar easements in some cases. Before doing so, local or state government would need to explain why using eminent domain is the best way to ensure solar access and that doing so is in the public interest. First, Problems arise because most public officials and landowners (their constituents) may balk at city government requiring selling development rights. Also, it is unlikely that the state or city would set aside funds to purchase solar easements due to cost, negligible public benefit compared to cost (due to the nature of the solar resource in Seattle) and anticipated opposition to the idea of using eminent domain to secure solar access. Eminent domain could be an option to protect solar access for solar arrays on public property such as government buildings or schools. Investment of taxpayer funds in a solar PV system to reduce operational expenditures ought to be protected and may be seen as more legitimate by the public and elected officials.

Transfer of Development Rights

Transfer of development rights is another idea suggested in the book Solar Access Law. Unlike nuisance law and eminent domain, transfer of development rights (TDR) has been used successfully in Seattle to protect historic buildings, existing affordable housing and large open spaces (Seattle Office of Housing 1995-2009). Historic buildings and affordable housing units are sending sites and downtown lots are receiving sites. The system encourages transfers between sites in the downtown area that are in relatively close proximity (City of Seattle 2001).

For enhancing solar access, urban village areas could be the designated receiving sites for development rights sent from the single-family zoned neighborhoods surrounding it. The transfer could be initiated by a third party property owner applying for a solar installation permit and notifying the affected neighbors. The affected neighbors would

then have an option to sell their development rights in exchange for a solar easement on the airspace above the property. The development rights whether placed in a bank or sold directly to a developer, would allow developers to increase building height in urban village areas (above 45 or 65 feet in some cases). The number of single family properties eligible would have to be carefully balanced with demand for increased density and still allow expansion of urban villages a their margins.

Residents of single-family neighborhoods would probably appreciate having an option to sell their development rights. Single-family homeowner benefits include the financial return, maintaining neighborhood character and scale, and allowing solar access for neighbors – an environmental benefit. For the city, growth management density goals may be realized sooner by allowing increased density in urban villages and create a win-win-win for solar access, single-family homeowners, and developers.

VII. Notable Solar Access Laws

Instant Access Rights – Wisconsin

The most radical solar access law is termed "instant access rights," described by Gail Boyer Hayes in the book Solar Access Law as "instantaneous, automatic rights to continued access to sunlight upon installation of collectors." (Hayes 1979). The only state (or locality) to pass such a law is Wisconsin. The state statute, passed in 1982, was in response to a court case, Prah v. Maretti (321 N.W.2d 182, Wis. 1982). The statute says, "The purpose of this section is to promote the use of solar and wind energy by allowing an owner of an active or passive solar energy system or a wind energy system to receive compensation for an obstruction of solar energy by a structure outside a neighbor's building envelope as defined by zoning restrictions in effect at the time the solar collector or wind energy system was installed." (Wisconsin State Legislature 1982).

Hayes' concerns about this type of law are: a) the law is still based on an "accident of time" such as with solar easements rather than foresight and planning, b) the law may so greatly restrict nearby property development as to make the land nearly worthless, c) the law creates an imbalance of power between neighbors (this time giving extreme power to the solar collector owner) and d) unconstitutional taking of property and equal protection problems are likely.

For Seattle and Washington State, it is unlikely this type of law would be passed for the above reasons and the goals of growth management. Rather than encourage solar energy as a beneficial public use, an "instant access rights" law could encourage single-family homeowners to use the law to block higher density developments. Again, for cities such as Seattle or Spokane that plan under growth management, an instant access rights law could push development outward rather than upward. It could also be argued that greater per capita cumulative energy savings would be realized by solar energy on closely sited, moderate density building rooftops that reduce the use of automobiles rather than on widely spaced single family detached homes.

Voluntary Solar Setback Ordinance – Kent, Washington

There are only a handful of examples of solar access laws in Washington cities that go beyond the state solar easement option. Bainbridge Island, Kennewick and Kent all have some affirmative statement towards protecting solar access in their code. Only Kent goes beyond semantic support and established a voluntary solar setback ordinance.

The solar setback ordinance is voluntary and only for new development on agricultural, agricultural residential and single family zones. It requires calculations based on slope of the lot to determine lot line setbacks to protect solar access. The ordinance only influences building location and distance from lot line – trees and future building additions are not affected (City of Kent 1998).

VIII. The "Takings" Issue

Except for private easements and the use of eminent domain (explained earlier), the solar access laws discussed here all impose some burden on a neighboring property without compensation. Courts will ask whether the solar access law imposes a severe financial burden, is unclear in it's public purpose, or if there is a less intrusive means to assure solar access. If any of these are found to be true, compensation or invalidation of the regulation may be required (Grossman, Copsey and Shirey 2006).

Several scenarios can be imagined where compensation or injunction may be required. Hillsides are problematic because properties on the north-slope may be undevelopable when any structure built on these uphill properties shades properties downhill. This will be a considered a regulatory taking if it prevents any viable economic use of the property. In this case compensation would probably be required.

Other scenarios could be if a neighboring single-family property wants to add additional stories or a commercial property wants to rezone from 45 feet to 65 feet to build a taller structure. In these cases, the public purpose of the law would need to be strongly asserted and still could be struck down if the court determines that the regulation interferes with vested development rights. In the case of single-family properties, current zoning allows building up to 35 feet and a solar access law eliminating that vested right without compensation could be considered a taking. In the commercial property case, vested development rights may not be the issue, but requiring the private developer to provide a public benefit (in this case solar access to generate clean electricity) may be considered a taking under Washington state law since there is no established right to sunlight (see: *Guimont v. Clarke*, 121 Wn.2d 586 (1993)).

The law may be invalidated if it does not clearly state why sunlight access for existing or future solar installations is in the public interest and protects public interest in "health, safety, welfare the environment, or fiscal integrity." (see: *Robinson v. City of*

Seattle, 119 Wn.2d 34, 830 P.2d 318 (1992)). The city of Seattle may be advised to conduct a new solar potential study (perhaps including climate and local ecological impacts) before enacting a solar permit/rights system, solar zoning, or amended development regulations. And as above, does the solar access law require private landowners to provide a public benefit rather than preventing some harm?

In some existing single-family neighborhoods it may be so burdensome to provide solar access (and difficult to prove it is for a public, not only a private purpose) that the courts may question whether there is another way to achieve the public goal of increased solar energy use (Grossman, Copsey and Shirey 2006). One way could be community solar – an opportunity for residents to pool their resources with each other to construct a large solar array on public land (a park or school for instance). Although there may not be enough public land for all interested residents, it may be an alternative that satisfies the courts.

VIV. 1980's Policy Recommendations

With interest in solar thermal energy peaking along with oil prices in the late 1970's, the City of Seattle through Seattle City Light and the Department of Community Development studied the feasibility of several solar access policies for the city. The document titled, "Solar Access Policy for Seattle," is the culmination of a two-part study on solar access in Seattle and a precursor to the "Seattle Solar Potential Study" published in 1981.

The "Solar Access Policy for Seattle" study evaluates 13 policy options on nine criteria:

1. Immediacy of Impact
2. Effectiveness
3. Administration
4. Clarity
5. Allocation of Costs and Benefits
6. Political Acceptability/Legality
7. Certainty

8. Flexibility
9. Lot-by-Lot vs. Area wide Protection

If a policy failed on administration or political acceptability/legality, it was not recommended.

Of the thirteen policies considered ten were considered politically feasible and grouped under three scenarios:

Supportive Official Policy, No Direct Regulation:

- Amend Seattle code to include a general policy statement that supporting solar energy is in the public interest.
- Adopt a solar access strategy for implementation over three to five years.
- Encourage private easements and covenants through education and information dissemination.

Direct Regulation Dealing with Structures Only:

- Lower the zoning height restriction on all single-family neighborhoods.
- Prohibit structures and objects exempt from zoning bulk regulations from shading portions of properties to the north.
- Amend zoning variance criteria to make shading a material detriment so variances could be denied when shading results.
- Allow exemptions from zoning bulk regulations for new construction on single lots and short plots.
- If additional regulations seem appropriate, zoning code could be amended to restrict home alterations and construction that shade neighboring structures. Solar overlay zones could be used to account for variation in Seattle urban form and topography. (An overlay zone is a special zoning district applied over existing zoning that identifies special provisions while maintaining existing zoning.)
- Interim protection policy by recordation of solar systems on a lot-by-lot basis and a long-term policy goal of a prescriptive or performance zoning standard.

Direct Regulation of Vegetation:

- A nuisance law, solar energy system recordation law, or a mediation process could be used to protect solar collectors from shading by trees. The regulation should be very specific on how specific deciduous and evergreen species are handled and exempt growth existing at the time of solar collector installation.

Although the early solar studies are valuable, their information is dated and should be used cautiously. Also, any updated study of solar potential or policy should include new issues such as what effect the policies have on mitigating greenhouse gas emissions, reducing the impact of climate change, and even handling excessive rainfall (Feldman and Marks 2009). Conducting new studies of Seattle's solar resource is essential before any long-term actions are tackled.

X. Recommendations

Although there is no guaranteed right to sunlight (Fontainebleau case), some jurisdictions have created this right through state statute (New Mexico Solar Rights and Recordation Act and Wisconsin statute 700.41). These cases are the parameters Washington state and Seattle can work within. It would be within the legislature's power to create a stronger solar access law, but is it politically acceptable?

It is unlikely that the Washington legislature would implement a statewide solar rights law due to the varying topographies, climates and solar resource between the eastern and western sides of the Cascades. However, three regional-based solar rights laws based on the growth management regions (the Puget Sound, Western Washington and Eastern Washington Growth Management Act Regions) may be feasible. Or passing a more detailed law delegating to, and explaining how, local authority can be used to protect solar access may be possible.

In Seattle, there are several possible immediate and long-term action items:

- Create standard solar easement legal forms, assist with solar easement negotiations and provide information for dissemination to solar system owners.

- Ensure solar easements are recorded by the county land office.

- Work with Office of Sustainability and Environment and Department of Planning and Development on a tree planting guide revision to include solar access considerations.

- Include a statement of support for solar energy in the comprehensive plan.

Long-term:

- Amend Planned Unit Development ordinance to consider solar access in planned unit development applications and in design review.

- Amend subdivision regulations and/or zoning variance assessment policy to support solar access.

- Study best solar resource areas in Seattle using up-to-date GIS techniques and walk-by surveys and the impact of growth management and tree canopy policy on solar access.

- Consider a limited, permit-based, solar rights ordinance. Require a solar resource assessment before granting solar right permit.

- Consider a solar overlay zone in certain areas of the city identified as having a favorable solar resource.

XI. Conclusion

Solar access in Seattle deserves our attention because property owner investments on both sides of the lot line are high. Since 2001, nearly 200 solar PV and dozens, if not hundreds, of solar thermal systems have been installed on Seattle rooftops. For the next quarter-century, at the least, these solar collectors will be producing emissions-free energy.

Aside from the current economic downturn, there is no reason to expect solar energy prices to stop decreasing and interest in solar to wane. In Washington and Seattle, sometime in the not-too-distant future, the levelized cost of solar PV will be competitive with conventional electricity generation. However, in addition to lower costs, the strong environmental ethic of Seattle residents will encourage more solar installations in the coming decades.

If solar energy continues its rapid pace of adoption, conflicts between land uses that inhabit the airspace above parcels will be more frequent. Understanding the physical, legal, historical and policy dimensions of solar access protection in Seattle is essential to laying the foundation for a sustainable future.

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Attachment 3

Solar Access: Recommendations for the City and County of Denver (Muller, 2009)

Solar Access:
Recommendations for the City and County of Denver

Prepared for the City and County of Denver, Colorado

Prepared by Hannah Muller,
U.S. Department of Energy Solar Energy Technologies Program

March 2009

THE IMPORTANCE OF SOLAR ACCESS

The City and County of Denver has committed to investing in clean energy sources to spur economic development and meet environmental and climate change goals. With over 300 days of sun per year, Denver is rich in solar resources. This report discusses how Denver can maximize opportunities for harnessing the sun's energy through a set of solar access ordinances and enforcement guidelines to aid property owners in their efforts to install solar energy systems, as well as protect the investment of individual property owners.

The sustainability review of the proposed changes to Denver's Zoning Code completed by Doug Farr & Associates in November 2008 determined that solar access is one of the top two issues that Denver should address within its 2009 Zoning Update. Without a set of well-coordinated solar access laws, Denver will face conflicts between stated City priorities, such as higher density development, tree preservation, and renewable energy adoption. By logically incorporating solar energy considerations into zoning codes and ordinances, Denver can clarify the responsibilities of various parties, achieve balance between City priorities, and avoid costly and time-consuming lawsuits.

NATIONAL CONTEXT

As with most land-use related matters, solar access laws have traditionally been enacted at the state and local level. Many states passed solar access laws in the 1970s; currently, 34 states (including Colorado) and about a dozen municipalities have some form of solar access law. Colorado's solar access laws prohibit residential covenants that restrict solar access (with exceptions), and allow property owners to agree voluntarily to solar easements with their neighbors[1].

As solar energy systems become more affordable and available to mainstream property owners, solar access is re-emerging as a regulatory area in need of clarification and coordinated, thoughtful enforcement. At least 15 of the 25 major U.S. cities participating in the U.S. Department of Energy's Solar America Cities program are in the process of reviewing their solar access laws. The Solar America Board of Codes and Standards published a report in October 2008 reviewing the status of solar access laws nationwide, and recommended a model state statute and best practices for local governments, many of which are referenced in this paper.

UNDERSTANDING SOLAR ACCESS

In order to harness the sun's energy, a property owner must have access to sunlight, and the right to install a solar energy system that converts sunlight into useable energy[i]. Accordingly, consideration of solar access should be separated into two categories: *solar easements*, which deal with access to sunlight, and *solar rights,* which deal with the right to install a solar energy system.

Solar Easements

Solar easements are legal agreements that protect access to sunlight on a given property. Solar easements are necessary because U.S. courts have held that there is no common law right to sunlight. This means that if the sunlight falling on a property is disturbed by another party, the property owner has no cause of action for nuisance, damages, or injunctive relief[2]. Currently, in Denver, a property owner could invest $30,000 in a solar energy system, only to have that system rendered nearly useless when a neighbor builds a second story addition or lets nearby trees grow to shade the solar system.

In order for a property owner to protect solar access on their property, they must obtain a solar easement. Colorado state law allows property owners to agree voluntarily to solar easements with their neighbors. In most of the U.S., including Denver, a property owner must actively pursue a solar easement. This typically consists of retaining a lawyer to draft the easement document, obtaining the signatures of adjacent property owners approving the easement, and ensuring that the easement is properly recorded in public records. Easement terms vary, but typically the neighbors commit to not building any structure or installing any landscaping that would block the sunlight falling on the property with the easement. Under this process, one unsupportive neighbor can prevent a property owner from obtaining an effective solar easement.

Solar easements can be creatively negotiated to have flexible conditions and terms. For example, easements can be written to cover only certain areas of a property, or to allow a certain percentage of shading from neighboring structures or landscaping. Easements may also contain provisions requiring financial compensation if excess shading occurs. This flexibility allows easements to effectively protect solar energy system owners without overly limiting the activities of neighboring property owners. Once created, the easement is attached to the property deed and generally stays with the property at sale.

Voluntary solar easements as a mechanism to protect solar access have several shortcomings. They require the property owner to be aware of the importance and availability of an easement, and have the time and money to work with a lawyer, neighbors, and the local government to develop and record the easement. Even an educated and persistent property owner can be thwarted by an unsupportive neighbor. And should a conflict arise where a neighbor is accused of violating a solar easement, enforcement options are generally limited to a costly and time-consuming personal lawsuit.

Local governments can take steps to improve the solar easement process, such as tying easements to solar system permits, and creating enforcement mechanisms such as fees levied on any property owner in violation of a recorded easement. More detailed recommendations are provided below.

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[i] This paper discusses solar access as it relates to active solar energy systems such as photovoltaics, solar water heaters, and solar thermal space heating and cooling. Passive solar energy systems such as south facing windows are also an effective way to use the sun's energy to light and heat a building; however, legislating access for passive solar is a complicated proposition. As discussed below, solar easements offer some protection for property owners interested in passive solar.

Solar Rights
Access to sunlight does no good if a property owner is prohibited from installing a solar energy system on their property by a restrictive covenant of a homeowners association or a local ordinance. Solar rights statutes and ordinances protect the rights of property owners to install solar energy systems.

Most homeowners associations (HOAs) have a set of covenants and restrictions that are intended to maintain certain characteristics of the community. These restrictions often focus on aesthetics. Through its bylaws, an HOA can directly or indirectly prohibit the installation of solar energy systems. Examples of indirect prohibition include height restrictions or restrictions on modifications to street-facing roofs.

A restrictive covenant that effectively prohibits the use of solar will not be upheld where state or local law expressly provides otherwise through a solar rights statute or ordinance[2]. Current Colorado law does limit the ability of HOAs to restrict solar energy systems; HOAs may only enforce restrictions that do not significantly increase the cost of installing or operating the system. The City of Denver does not currently have any ordinances that provide property owners with additional solar rights beyond what is specified in state law.

While residential property owners are given some solar rights under Colorado law, it is easy to imagine how these rights could be improperly exercised or contested in practice. The City of Denver therefore has a role to play in helping its residents understand their solar rights. This can be accomplished through a combination of outreach, clarifying ordinances, and enforcement; specific recommendations are provided below.

In addition to HOAs, local governments can also effectively prohibit the installation of solar systems through zoning codes and ordinances such as height restrictions and historic structure protections. Denver's codes and ordinances should be reviewed with an eye toward potential modifications that would retain the original intent of the ordinance without having the side effect of prohibiting solar system installation. Specific examples of how to incorporate solar exemptions or flexibility into existing code are provided below.

City staff should note that solar systems require adequate rooftop square footage in order to serve a reasonable portion of a building's energy load. For this reason, solar systems should be permitted on primary dwelling units, in addition to accessory dwelling units.

BEST PRACTICES FOR PROMOTING AND PROTECTING SOLAR ACCESS

Offer Solar Access Permits *(City of Boulder, CO; City of Ashland, OR)*
One way to protect a property owner's investment in a solar system is to tie the solar permitting process to a process of creating a solar easement. Solar systems typically require a permit from a local government authority, and by incorporating a solar easement into the permitting process, paperwork is minimized and solar systems are more likely to be protected. The cities of Boulder, CO and Ashland, OR have implemented solar access permit schemes that involve granting easements. A solar system registry that uses GIS mapping can assist in tracking solar installations.

The ordinance providing for the special permit process can address the following:

- What constitutes an impermissible interference with the right to direct sunlight granted by a solar access permit and how to regulate growing vegetation that may interfere with such right.
- Standards for the issuance of solar access permits, balancing the need of solar energy systems for direct sunlight with the right of neighboring property owners to the reasonable use of their property within other zoning restrictions.

- A process for issuance of solar access permits including, but not limited to, notification of affected neighboring property owners, opportunity for a hearing, appeal process and recordation of such permits on burdened and benefited property deeds.
- Enforcement mechanisms, such as fees levied on parties who violate the terms of an easement[2].

Create Solar System Registry *(County of Santa Cruz, CA)*
A solar system registry and map, in addition to being a useful tool for tracking solar energy adoption within a city, can help inform and expedite enforcement of solar access laws. Online mapping software can show the location of every solar energy system within a city, alerting contractors and city planners to the need to consider the impacts of development of a neighboring parcel.

Revise Local Ordinances Posing Unintended Obstacles *(City of Los Angeles, CA; City of Sacramento, CA)*
Careful review of zoning codes and ordinances can reveal areas where a well-intended ordinance has inadvertently restricted installation of solar energy systems. In many cases, these ordinances can be modified to serve the original purpose without preventing property owners from installing solar systems.

For example, the City of Los Angeles exempts solar systems from standard building height limitations, but requires that for each foot of additional height, the solar system must be set back from the roof edge by an additional foot. The City of Sacramento is encouraging urban forestry, but requires that city planners responsible for tree planting in residential areas consider solar access and minimize rooftop shading. The City of Gainesville, Florida protects certain species of trees but allows the removal or relocation of regulated trees if they are preventing the installation of a solar system.

In some cases, codes and ordinances related to aesthetics and historic structures can effectively prohibit installation of solar systems. Regulations based solely on aesthetic considerations will not stand in court unless they bear a reasonable relation to public welfare. In order to avoid court proceedings, Denver can review its aesthetic-related ordinances to ensure that they consider the benefit provided by solar systems and aim for a compromise that preserves aesthetics while allowing for clean energy production.

Set Standards for New Construction *(City of Sacramento, CA; City of Sebastopol, CA; Marin County, CA)*
Solar access can often be more easily addressed for new construction than existing construction. Local governments have developed an array of zoning ordinances for new construction that protect solar access and solar rights, including:

- Require east-west street and building orientation (typically within 30 degrees of the east-west axis)
- Require landscaping that complements solar energy systems
- Require dedication of solar easements for all newly constructed buildings

In addition to protecting access to sunlight for solar energy systems, these regulations also facilitate greater use of passive solar space heating and lighting, one of the most efficient ways to heat and light a building.

Require Clear Homeowners Association Rules *(State of Hawaii)*
A state or local government can require homeowners associations (HOAs) to establish rules for solar system installations within their community. By spelling out the exact aesthetic requirements and necessary approvals and distributing this information to its members, the HOA can avoid costly lawsuits. Because an HOA may not necessarily be equipped to develop such rules on its own, the state or local government should provide guidance to HOAs that explains state and local solar access laws, and suggests some parameters the HOAs may wish to follow.

ADDITIONAL RECOMMENDATIONS FOR DENVER

Consider Solar Access for Commercial Properties

The vast majority of solar access laws on the books relate to residential properties. However, commercial properties are often optimal sites for solar energy installations; they tend to have large flat roof areas and high energy loads. Furthermore, a commercial size solar energy system is a significant investment that is currently not protected by any state or local ordinances. If a car dealership installs a $500,000 solar system, and a year later another developer constructs a 10 story condo complex that shades the dealership's solar panels, the dealership has no recourse.

Many of the solar easement and solar rights provisions granted to residential properties can and should be made available to commercial properties.

Conduct Outreach and Provide an Information Center

Solar access is a complicated issue with which few people are familiar. As an increasing number of residents and businesses turn to solar as a clean, reliable energy source, more questions will arise about solar access and the responsibilities and liabilities of various parties. The best way to avoid lengthy and costly lawsuits involving property owners, the local government, and HOAs is to develop a website and conduct outreach to educate property owners, HOAs, contractors, and city officials about solar access laws. The City of Denver should identify a solar access point of contact within city government, to whom all inquiries can be directed.

THE BOTTOM LINE

Solar access will become a prominent issue over the next five to ten years as solar system costs drop and become competitive with conventional electricity rates. Thousands of Denver residents and businesses will turn to solar energy to power their homes and commercial buildings. Denver needs to recognize the great opportunities and complications of distributed generation such as rooftop solar, and do its part to facilitate a smooth transition to cleaner, more secure energy production. The City of Denver has an opportunity to comprehensively address solar access and ensure that its residents and businesses can take advantage of the city's sunny weather and power their homes and buildings with clean, reliable solar energy

References

[1] Database of State Incentives for Renewable Energy, www.dsireusa.org.

[2] Kettles, Colleen McCann, 2008. A Comprehensive Review of Solar Access Law in the United States. Solar America Board for Codes and Standards, www.solarabcs.org.

Attachment 4

Example Ordinances
(from A Local Official's Guide to Zoning and Land Use for Renewable Energy)
(Planning Advisory Service)

A Local Official's Guide to Zoning and Land Use for Renewable Energy

An overview of how zoning and land use controls may impact renewable energy development

Produced by the Pioneer Valley Planning Commission with funding from the Renewable Energy Trust of the Massachusetts Technology Collaborative

How to Use This Guide

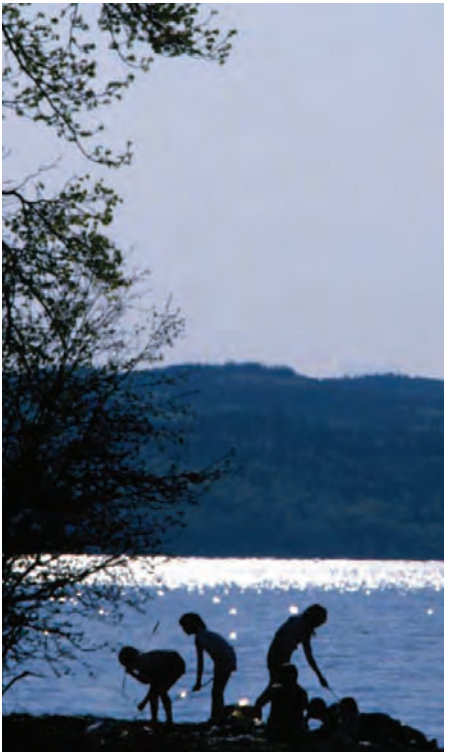
The following is an overview of how zoning and land use controls may impact renewable energy development, combined with recommendations to guide local officials in promoting renewable energy. Ultimately, a range of local considerations will determine the form and scope of a town's renewable energy efforts. These recommendations are meant to provide a general framework for analyzing your town's zoning environment and identifying beginning points, as well as longer-term strategies, for the regulatory reform process. Each town should undertake an individualized assessment of factors that will influence the development of land use policies to address renewable energy.

Local Attitudes

Attitudes of residents and landowners will be critical in the development and adoption of any regulatory changes needed to accommodate renewable energy operations. Local planning documents may shed some light on community attitudes toward this kind of land use.

Existing Plans

Review the most recent Master or Comprehensive Plan completed in your municipality. Most master planning documents feature a list of goals and strategies that could include references to renewable energy, energy production, energy infrastructure, or sustainable growth. Although most plans will not specifically mention renewable energy development, these municipal land use policy documents are the most likely place to begin a search for recently documented resident attitudes toward general sustainability.



Surveys & Visioning

Many strategic plans begin with a 'visioning process' during which local residents and employers are able to voice their opinions on a range of growth and development topics. If

your community has completed a visioning process in recent years you may find that a community-wide survey was conducted to measure residents' attitudes toward a range of subjects. Study these survey results for any indication of popular opinion regarding local or regional renewable energy. If no recent citizen surveying has been completed in your community, you should consider some sort of limited survey to be a useful tool in determining how local residents might respond to the development of renewable energy resources in their backyards. A mailed survey sent to a random sampling of households could serve to establish the general attitude of residents and help you to shape any proposal for regulatory change.

Public Outreach

Working with a local newspaper to highlight the issue of renewable energy is an alternative to the survey tool in helping to identify citizen attitudes. A letter to the editor from an elected or appointed official outlining the issue could be an effective way to begin the discussion. Alternatively, a brief "white paper" highlighting the pros and cons of various alternative energy technologies could establish an informed dialogue in the community and set the stage for additional discussion regarding local land use options. If a local paper is not willing to provide a forum for this discussion, your community might consider producing a local access TV program centered around the issue of renewable energy. An increasing number of municipalities are using local

Community Planning Workshop - Palmer, MA

access TV as a dynamic forum for locally important issues. A "call-in" segment of the program can be used to solicit immediate input from viewers and offer the opportunity for a less static and very watchable affair.

Anemometry Installation - Northfield, MA

The Internet also provides an excellent way to distribute information regarding specific projects or more general issues and opportunities related to renewable energy development. This tool becomes most effective when visitors to the web site are given the option to respond or comment on the information presented.

Existing Community Resources

An honest review of local resources is an important part of any municipal renewable energy assessment. Given the limits of the natural energy resources and the current technologies for harnessing these resources it is clear that not all communities will be viable hosts for all renewable energy operations. Communities with highland areas may be well situated for wind power while forested communities may discover that tree trimmings or nursery cuttings can provide a source of sustainable local energy. Solar access on a community level is typically site dependent with some hillsides or heavily urbanized sites being less suitable for these systems. A mapping of local waterways may indicate local potential for micro-hydro applications. GIS (Geographic Information Systems) mapping analysis is an extremely useful tool for determining the gross, and site-specific, viability of renewable energy operations. Information regarding geographical appropriateness for various technologies is available from organizations involved in developing sustainable energy. (see Resource List on back page)

SODAR Operation - Mt. Tom, MA

Physical Appropriateness

Physical appropriateness is a factor that must be assessed locally. In part, the appropriateness of a generating facility or distribution system is linked directly to attitudes in your community regarding the acceptability of non-residential uses. Several attributes should be considered as critical characteristics in seeking acceptance from the community through its land use regulations. These include scale, bulk, height, visual presence (size, construction materials used), human environmental impact (noise, glare, smell, lighting), and performance (level of activity on site, motion and movement, vehicle traffic, emissions). Although the development of sustainable, renewable sources of energy is in the best interest of the larger human community, it cannot be forgotten that at the neighborhood level, any land use that threatens to change the local built and natural environment must be introduced and discussed with care and sensitivity toward those residents who will be asked live with it.

LAND USE CODE REVIEW

We encourage municipalities to review their own land use codes in light of the information provided below. Areas for attention include:

- Purpose Statements: both general and district-specific
- Use Provisions: definitions, type of approval, and availability of variances
- Incentives: including review waivers and dimensional/density bonuses
- Subdivision and Planned Unit Development Regulations

PURPOSE STATEMENTS

The General Purpose provision typically is the first section in a Zoning Bylaw. It sets the tone of the bylaw by making a visionary statement about what the bylaw is meant to accomplish. Similar purpose statements should accompany each zoning district delineated within a town. Purpose statements are not just window-dressing: these statements contain the overarching statutory framework that can guide boards' zoning decisions and thus give the town control over development. Well-tailored and considerate purpose statements can serve two crucial functions for a town. First, they can induce desirable changes by sending clear, receptive messages to property owners and developers regarding certain uses and structures. Just as importantly, purpose statements can control undesired development by making strong, legally-enforceable statements about the character and priorities of the town and its districts.

A town seeking to encourage renewable energy development can do so by incorporating positive language in its general and district-specific purpose statements.

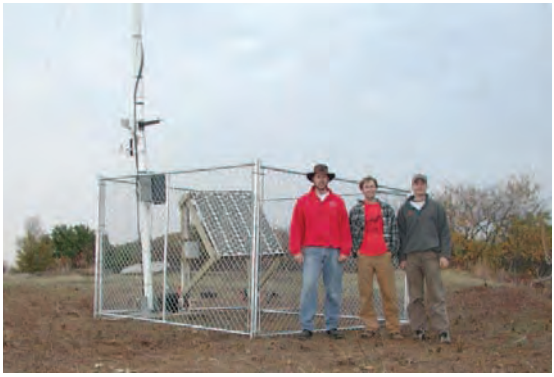
General Purpose Statement

To be inserted in standard statement adopted from SZEA (Mass. General Laws, Chapter 40A): "...to encourage the development and use of renewable energy resources including, but not limited to, solar, wind, biomass, methane (landfill gas), micro-hydro, and other similar sources..."

District-Specific Purpose Statement

To be inserted in district-specific statements:

- After explicit statements regarding discouraged uses: "...such provision should not be read to discourage the development and use of renewable energy facilities where such facilities meet the specific criteria outlined [below]"
- Standing alone or as part of an explicit statement regarding encouraged uses: "...[in addition to/complementing] the predominant use in the district, uses related to energy generation from renewable resources are encouraged."



Resource Monitoring Site with PV Power - Thompson Island, MA

USES and VARIANCES

Use Definitions

A zoning by-law may prohibit a use simply by excluding it from the table (or list) of uses allowed in a given zoning district. In standard zoning enforcement practice, when a zoning by-law does not mention a specific use and the use does not fit within the definition of any other use in the bylaw, the use is considered specifically prohibited. When a use is specifically prohibited, a developer proposing such a use may not obtain a building permit unless the municipality has a provision for a use variance—and one is granted by the local Zoning Board of Appeals. Since the enactment of the updated state enabling legislation in 1975, the concept of the use variance has fallen into severe disfavor making this an extremely unlikely path for an applicant seeking approval of an application under a local zoning bylaw. A final recourse for a proponent of an omitted or prohibited use is to petition the town for an amendment to the local zoning by-law so as to permit the desired use.

Most zoning codes do not contain use definitions that would clearly apply to a renewable energy project. Thus, local officials reviewing such projects are likely to face difficulties regarding the interpretation of local land use codes, and applicants will encounter great uncertainty in the zoning process. To avoid these difficulties, a town can pass provisions explicitly defining desired (and undesired) energy generation facilities. Special attention should be paid to:

1. distinguishing small scale, renewable energy facilities from "power plants," and
2. differentiating among different types of energy generation facilities based on fuel sources, scale, technology, and neighborhood impact.

Two enclosed methane flares at the I-95 Landfill in Michigan

A bioreactor constructed on a landfill in Yolo County, California

Definition of Energy Generation Facility

"Energy Generation Facility" means a generator unit that may use a variety of sources and/or products for the production of power either

1. for use on-site [and/or by non-commercial users],
2. for sale to the grid, accessory to on-site use of power, or
3. for sale to the grid as a primary use.

Fossil Fuel Generation Facility

"Fossil fuel generation facility" means an energy generation facility that uses petroleum, coal and/or natural gas products as sources for the production of power as a primary use or that is intended to run for a length of time exceeding [7] days. This definition does not include a facility that provides on-going support power to other stationary energy facilities, such as fuel cells, or that provides temporary emergency power.

Distributed Generation Facility

"Distributed generation facility" means a small- or mid-scale energy generation facility located at or near the customer site. The broad term encompasses advanced combustion technologies such as microturbines, reciprocating engines and fuel cells, as well as non-combustion options like photovoltaic cells and wind turbines. Types of energy sources may include, but are not limited to, petroleum, methane, ethanol, thermal, wind, solar, hydro, and other sources as determined by the reviewing official.

From left to right, Kristen Burke, Sally D. Wright and Nancy Nylen at the windmill meeting in Lenox, MA

TYPE OF APPROVAL

There are several methods for permitting renewable projects in land use codes:

By-Right

Renewable energy projects can be allowed "by-right" in a zoning bylaw. In order to accomplish this, a municipality would have to include the specific use categories in the table (or list) of uses as being permitted or allowed. Although a permitted use does not require additional zoning oversight, the specific project would still require a building permit and would be subject to any environmental and health regulations that apply.

This solar home, constructed by Maine Solar House, generated 2,051 kW hrs of electricity from its integrated roof array in 6 months.

Administrative Review

This form of local zoning oversight is often overlooked by Massachusetts communities. Administrative Review of a site plan for a renewable energy project would require a planning board to review the site plan and allow the board to set reasonable standards for the project. This is done at a regular meeting of the board and does not require the public hearing process that is a necessary part of the special permitting process. The project applicant must meet any reasonable standards set by the board, however, the planning board cannot deny the proposed use. This differs fundamentally from the special permit process in which a board may simply reject a proposed use should its character be found to be inappropriate for the neighborhood in which it is being located. The administrative review and approval process is best used for categories of land use that are basically appropriate within a zoning district but that may require some board oversight as to how they appear and function on a specific property.

Special Permit

The special permit process provides for the greatest amount of control by a municipality seeking renewable energy projects. The primary benefit of this process is that special permitting allows the reviewing board to reject a proposed use if it does not meet the standards established in the zoning bylaws. The ability to say 'no' to a proposal gives the board much leverage in the review process while forcing the applicant to prepare a comprehensive response to any likely criticisms of the development. The review criteria, or performance criteria, for projects can also be used to provide incentives for preferred uses by reducing the application or review burden or by waiving certain conditions and requirements for a project. It must also be stated that the special permitting process can be a daunting obstacle for some applicants. Often an applicant must spend considerable sums of money in order to prepare an adequate special permit application. Without the assurance that the project

Vestas 660 kW Wind Turbine - Hull, MA

will ultimately move forward, this can discourage the development of projects in a community. If a municipality wishes to encourage development of renewable energy projects, the special permit process should be applied carefully so as not to create unnecessary regulatory burdens for applicants.

Variances

Even well-drafted definitions and appropriate types of approval will not cover every desirable proposed use in every district. Thus, a town may also consider adopting a provision for a 'use variance' that would allow individual applicants to seek approval of renewable energy projects that the table of uses would otherwise not allow. However, given the fact that state courts may look unfavorably upon a use variance in Massachusetts, it is recommended that municipalities seeking discretionary review power over renewal energy projects instead use the Special Permit process.

INCENTIVES

A town looking to encourage development of renewable energy resources may do so through creation of an overlay district and/or incentives, both of which must be provided for in the zoning by-law. These two zoning tools allow a town to signal to developers that the community values and prefers certain uses. Towns have discretion in deciding which uses will receive special treatment. For example, overlay districts and incentive provisions that encourage creation of art and civic space, as well as affordable housing and green space preservation, have enjoyed recent popularity with towns seeking to revitalize their towns and town centers. The same approach may be taken for renewable energy projects.

Dimensional Incentive

One form of incentive is the dimensional or density bonus, e.g., the allowance for extra square footage of commercial space, additional residential units or height allowances above those permitted by right, awarded to developers who propose projects that incorporate a renewable energy component. This incentive may work very well in a mixed use setting such as in a Planned Unit Development and, in the case of a density bonus, may serve to increase the number of potential users of a renewable energy source.

Solar Sensor Installation - Mt. Tom, MA

Expedited Review and Waiver of Application Requirements

This technique is particularly effective when combined with conventional special permitting as these incentives may help to reduce the pre-construction costs of a proposed project. The waiver of fees or some application requirements can also serve to reduce the time and effort needed to take a project from the conceptual phase to the final ribbon cutting – another cost savings for the developer.

Overlay Districts

An overlay district is a simple way to take these incentives and make them available either (1) in a specific geographic area within the town (which can encompass several districts) or (2) in the town as a whole. The overlay district may supplement or trump the underlying district zoning. Additionally, as the town decides the boundaries of the overlay district, it exercises some control over the location of renewable energy projects.

SUBDIVISION REGULATIONS AND PLANNED UNIT DEVELOPMENT

The Subdivision Control Law, a separate enabling statute from the Zoning Act, grants authority to municipalities to adopt regulations governing the subdivision of land. Essentially, these regulations dictate the process for creating new roads. However, subdivision regulations also guide the process for ensuring that development is orderly and safe and include standards for lot layout, road construction, provision of amenities like street trees, vehicular and pedestrian access, the provision of development infrastructure, and other discretionary topics which a planning board may regulate.

Subdivision regulations are developed and adopted by local planning boards and do not require legislative adoption by Town Meeting or City Council.

General Guidance

Subdivision regulations can encourage residential subdivision design that facilitates distributed generation and the use of renewable energy sources. For example, communities may require that Development Impact Statements address distributed generation and renewable energy technologies. Perhaps the most significant way in which subdivision regulations can reduce the barriers to renewable energy is through encouraging street and lot layouts that take advantage of solar orientation. By laying streets out on a west to east axis and by orienting buildings so that their longest sides face within 30 degrees of south, solar access can be optimized. This has advantages for maximizing solar heat gain during the winter months, as well as providing a potential for utilizing photovoltaic technology. Other measures might include requiring siting of street trees so as to avoid blocking solar access.

Open Space Provisions

In communities where Open Space Subdivision (also known as Cluster or Conservation Development) may occur, the opportunity exists for allowing some power generation in the otherwise permanently protected open areas of the development. Communities that allow this type of residential development currently would likely require an amendment to their zoning regulations specifically allowing the production of renewable energy in the open areas of the subdivision while establishing clear guidance as to the scope and scale of such facilities.

Planned Unit Development (PUD)

State legislation gives Massachusetts municipalities the explicit authority to issue special permits for planned unit development (PUD) – a mixed-use development project that may include single- and multifamily dwellings as well as office and commercial space. The goal of planned unit development regulations is to provide a set of standards for the approval of a PUD development through an administrative review process. Although PUD regulation is similar to site plan and subdivision review, it typically grants more discretion to the reviewing authority. Reviewing the project as a single entity allows improved, comprehensive siting, higher development densities, and protected open space. Thus, PUD developments may be well-suited to the deployment of renewable energy generation. Higher densities in these developments mean that economies of scale may be achieved while open space set-asides and comprehensive siting allow installation of these energy facilities in an appropriate on-site location. In addition, the Planned Unit Development process allows the seamless integration of dimensional and density bonus incentives.

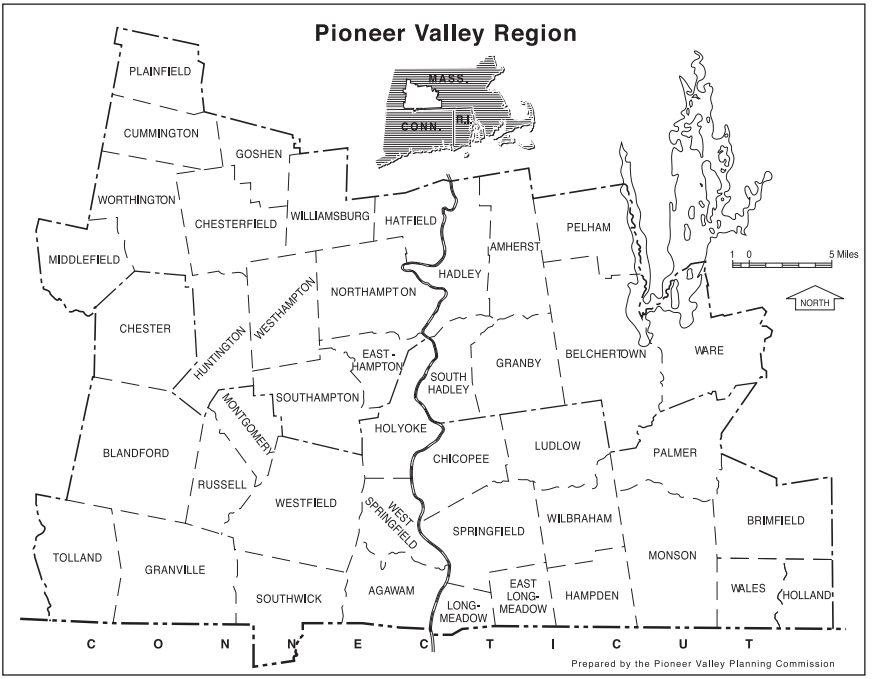
CONCLUSION

Encouraging the development of renewable energy or distributed generation projects in your municipality is not only a smart way to protect our environment, it also lays the groundwork for ushering in a more sustainable future for the generations to follow. These new – and sometimes ancient – technologies for harnessing the power of our planet can be developed throughout the Pioneer Valley. Modest changes to our local land use laws will tell the developers of renewable energy sources that this region is ready for sustainable projects that improve our quality of life and reduce our dependence on outside sources of energy.

If your community would like assistance in developing land use regulations that encourage renewable energy projects, contact the Pioneer Valley Planning Commission (PVPC) at:

Pioneer Valley Planning Commission
26 Central Street, West Springfield, MA 01089-2787
Phone: (413)781-6045 • Email: cmiller@pvpc.org
Web Site: www.pvpc.org

PVPC's Local Technical Assistance program provides technical support to the 43 municipalities in the Pioneer Valley including the development of zoning bylaws, zoning and resource maps, and subdivision regulations.



For more information:

Pioneer Valley Planning Commission
www.pvpc.org and www.pvsustain.com

Massachusetts Technology Collaborative
www.MassTech.org

Massachusetts Department of Energy Resources
www.mass.gov/doer

Northeast Sustainable Energy Association
www.nesea.org

United States Department of Energy -Energy Efficiency and Renewable Energy
www.go.doe.gov

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MASSACHUSETTS TECHNOLOGY COLLABORATIVE
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PIONEER VALLEY PLANNING COMMISSION
PVPC

PVSustain.com

Solar Access Ordinances

Ashland (Oregon), City of. *Municipal Code*. 2007.

18.70 Solar Access

18.70.010 Purpose and Intent

The purpose of the Solar Access Chapter is to provide protection of a reasonable amount of sunlight from shade from structures and vegetation whenever feasible to all parcels in the City to preserve the economic value of solar radiation falling on structures, investments in solar energy systems, and the options for future uses of solar energy.

18.70.020 Definitions

A. Exempt Vegetation. All vegetation over fifteen (15) feet in height at the time a solar access permit is applied for.

B. Highest Shade Producing Point. The point of a structure which casts the longest shadow beyond the northern property boundary at noon on December 21st.

C. Natural Grade. The elevation of the natural ground surface in its natural state, before man-made alterations. The natural ground surface is the ground surface in its original state, before any grading, excavation, or filling.

D. Northern Lot Line. Any lot line or lines less than forty-five (45) degrees southeast or southwest of a line drawn east-west and intersecting the northernmost point of the lot. If the northern lot line adjoins any unbuildable area (e.g., street, alley, public right-of-way, parking lot, or common area) other than a required yard area, the northern lot line shall be that portion of the northerly edge of the unbuildable area which is due north from the actual northern edge of the applicant's property.

E. North-South Lot Dimension. The average distance in feet between lines from the corners of the northern lot line south to a line drawn east-west and intersecting the southernmost point of the lot.

F. Solar Energy System. Any device or combination of devices or elements which rely upon direct sunlight as an energy source, including but not limited to any substance or device which collects sunlight for use in the heating or cooling of a structure or building, the heating or pumping of water, or the generation of electricity. A solar

energy system may be used for purposes in addition to the collection of solar energy. These uses include, but are not limited to, serving as a structural member of part of the roof of a building or structure and serving as a window or wall.

G. Solar Envelope. A three dimensional surface which covers a lot and shows, at any point, the maximum height of a permitted structure which protects the solar access of the parcel(s) to the north.

H. Solar Heating Hours. The hours and dates during which solar access is protected by a solar access permit, not to exceed those hours and dates when the sun is lower than twenty-four (24) degrees altitude and greater than seventy (70) degrees east and west of true south.

I. Solar Access Permit Height Limitations. The height limitations on affected properties required by the provisions of a Solar Access Permit displayed as a series of five (5) foot contour lines which begin at the bottom edge of the solar energy system protected by the permit, rise at an angle to the south not less than twenty-four (24) degrees from the horizon, and extend at an angle not greater than seventy (70) degrees to the east and west of true south and run parallel to the solar energy system.

J. Solar Setback. The minimum distance that a structure, or any part thereof, can be located from a property boundary.

K. Slope. A vertical change in elevation divided by the horizontal distance of the vertical change. Slope is measured along lines extending one hundred fifty (150) feet north from the end points of a line drawn parallel to the northern lot line through the midpoint of the north-south lot dimension. North facing slopes will have negative (-) values and south facing slopes will have positive (+) values.

L. Sunchart. Photographs or drawings, taken in accordance with the guidelines of the Staff Advisor, which plot the position of the sun during solar heating hours. The sunchart shall contain at a minimum the southern skyline as seen through a grid which plots solar altitude for a forty-two (42) degree northern latitude in ten (10) degree increments and solar azimuth measured from true south in fifteen (15) degree increments. If the solar energy system is less than twenty (20) feet wide, a minimum of one (1) sunchart shall be taken from the bottom edge of the center of the solar energy system. If the solar energy system is greater than twenty (20) feet wide, a minimum of

two (2) suncharts shall be taken, one (1) from the bottom edge of each end of the solar energy system.

18.70.030 Lot Classifications

Affected Properties. All lots shall meet the provisions of this Section and will be classified according to the following formulas and table:
FORMULA I:
Minimum N/S lot dimension for Formula I = 30' 0.445 + S Where: S is the decimal value of slope, as defined in this Chapter.

FORMULA II:
Minimum N/S lot dimension for Formula II = 10' 0.445 + S Lots whose north-south lot dimension exceeds that calculated by Formula I shall be required to meet the setback in Section (A), below.
Those lots whose north-south lot dimension is less than that calculated by Formula I, but greater than that calculated by Formula II, shall be required to meet the setback in Section (B), below.
Those lots whose north-south lot dimension is less than that calculated by Formula II shall be required to meet the setback in Section (C), below.

See the Lot Classification Standards image at the bottom of the page

18.70.040 Solar Setbacks

A. Setback Standard A. This setback is designed to insure that shadows are no greater than six (6) feet at the north property line. Buildings on lots which are classified as Standard A, and zoned for residential uses, shall be set back from the northern lot line according to the following formula:
SSB = H - 6'
0.445 + S
WHERE:
SSB = the minimum distance in feet that the tallest shadow producing point which creates the longest shadow onto the northerly property must be set back from the northern property line.
H = the height in feet of the highest shade producing point of the structure which casts the longest shadow beyond the northern property line.
S = the slope of the lot, as defined in this Chapter.

B. Setback Standard B. This setback is designed to insure that shadows are no greater than sixteen (16) feet at the north property line.
Buildings for lots which are classified as Standard B, or for any lot zoned C-1, E-1 or M-1, or for any lot not abutting a residential zone to the north, shall be set back from the northern lot line as set forth in the following formula:
SSB = H - 16'
0.445 + S

C. Setback Standard C. This setback is designed to insure that shadows are no greater than twenty-one (21) feet at the north property line.
Buildings for lots in any zone whose north/south lot dimension is less than Standard B shall meet the setback set forth in the following formula:
SSB = H - 21'
0.445 + S

D. Exempt Lots. Any lot with a slope of greater than thirty percent (30%) in a northerly direction, as defined by this Ordinance, shall be exempt from the effects of the Solar Setback Section.

E. Lots Affected By Solar Envelopes. All structures on a lot affected by a solar envelope shall comply with the height requirements of the solar envelope.

F. Exempt Structures.

1. Existing Shade Conditions. If an existing structure or topographical feature casts a shadow at the northern lot line at noon on December 21, that is greater than the shadow allowed by the requirements of this Section, a structure on that lot may cast a shadow at noon on December 21, that is not higher or wider at the northern lot line than the shadow cast by the existing structure or topographical feature. This Section does not apply to shade caused by vegetation.

2. Actual Shadow Height. If the applicant demonstrates that the actual shadow which would be cast by the proposed structure at noon on December 21, is no higher than that allowed for that lot by the provisions of this Section, the structure shall be approved. Refer to Table D for actual shadow lengths.

18.70.050 Solar Access Performance Standard

A. Assignment of Solar Factor. All land divisions which create new lots shall be designed to permit the location of a twenty-one (21) foot high structure with a setback which does not exceed fifty (50%) percent of the lot's north-south lot dimension. Lots having north facing (negative) slopes of less than fifteen percent (15%) (e.g., 10%), and which are zoned for residential uses, shall have a north-south lot dimension equal to or greater than that calculated by using Formula I. Lots having north facing (negative) slopes equal to or greater than fifteen percent (15%) (e.g., 20%), or are zoned for non-residential uses, shall have a north-south lot dimension equal to or greater than that calculated by using Formula II.

B. Solar Envelope. If the applicant chooses not to design a lot so that it meets the standards set forth in (A) above, a Solar Envelope shall be used to define the height requirements which will protect the applicable Solar Access Standard. The Solar Envelope, and written description of its effects, shall be filed with the land partition or subdivision plat for the lot(s).

basically protecting property to the north!

18.70.060 Variances

A. Variances to this Chapter shall be processed as a Type I procedure, except that variances granted under subsection B of this Section may be processed as a Staff Permit. (Ord. 2484 S3, 1988)

B. A variance may be granted with the following findings being the sole facts considered by the Staff Advisor:

1. That the owner or owners of all property to be shaded, sign and record with the County Clerk on the affected properties' deed, a release form supplied by the City, which contains the following information:

a. The signatures of all owners or registered leaseholders who hold an interest in the property in question.

b. A statement that the waiver applies only to the specific building or buildings to which the waiver is granted.

c. A statement that the solar access guaranteed by this Section is waived for that particular structure and the City is held harmless for any damages resulting from the waiver.

d. A description and drawing of the shading which would occur, and

2. The Staff Advisor finds that:

a. The variance does not preclude the reasonable use of solar energy on the site by future buildings; and

b. The variance does not diminish any substantial solar access which benefits a habitable structure on an adjacent lot.

c. There are unique or unusual circumstances which apply to this site which do not typically apply elsewhere.

18.70.070 Solar Access Permit for Protection from Shading by Vegetation

A. A Solar Access Permit is applicable in the City of Ashland for protection of shading by vegetation only. Shading by buildings is protected by the setback provisions of this Ordinance.

B. Any property owner or lessee, or agent of either, may apply for a Solar Access Permit from the Staff Advisor. The application shall be in such form as the Staff Advisor may prescribe but shall, at a minimum, include the following:

1. A fee of Fifty ($50.00) Dollars plus Ten ($10.00) Dollars for each lot affected by the Solar Access Permit.

2. The applicant's name and address, the owner's name and address, and the tax lot number of the property where the proposed solar energy system is to be located.

3. A statement by the applicant that the solar energy system is already installed or that it will be installed on the property within one (1) year following the granting of the permit.

4. The proposed site and location of the solar energy system, its orientation with respect to true south, and its slope from the horizontal shown clearly in drawing form.

5. A sun chart.

6. The tax lot numbers of a maximum of ten (10) adjacent properties proposed to be subject to the Solar Access Permit. A parcel map of the owner's property showing such adjacent properties with the location of existing buildings and vegetation, with all exempt vegetation labeled exempt.

7. The Solar Access Permit height limitations as defined in Section 18.70.050 of this Ordinance, for each affected property which are necessary to protect the solar energy system from shade during solar heating hours. In no case shall the height limitations of the Solar Access Permit be more restrictive than the building setbacks.

C. If the application is complete and complies with this Ordinance, the Staff Advisor shall accept the solar access recordation application and notify the applicant. The applicant is responsible for the accuracy of all information provided in the application.

D. The Staff Advisor shall send notice by certified letter, return receipt requested, to each owner and registered lessee of property proposed to be subject to the Solar Access Permit. The letter shall contain, at a minimum, the following information:

1. The name and address of the applicant.
2. A statement that an application for a Solar Access Permit has been filed.
3. Copies of the collector location drawing, sunchart, and parcel map submitted by the applicant.
4. A statement that the Solar Access Permit, if granted, imposes on them duties to trim vegetation at their expense.
5. The advisability of obtaining photographic proof of the existence of trees and large shrubs.
6. The times and places where the application may be viewed.
7. Telephone number and address of the City departments that will provide further information.
8. That any adversely affected person may object to the issuance of the permit by a stated time and date, and how and where the objection must be made.

E. If no objections are filed within thirty (30) days following the date the final certified letter is mailed, the Staff Advisor shall issue the Solar Access Permit.

F. If any adversely affected person or governmental unit files a written objection with the Staff Advisor within the specified time, and if the objections still exist after informal discussions among the objector, appropriate City Staff, and the applicant, a hearing date shall be set and a hearing held in accordance with the provisions of Section 18.70.080.

18.70.080 Hearing Procedure

A. The Staff Advisor shall send notice of the hearing on the permit application to the applicant and to all persons originally notified of the Solar Access Permit application, and shall otherwise follow the procedures for a Type I hearing.

B. The Staff Advisor shall consider the matters required for applications set forth in Section 18.70.070(B) on which the applicant shall bear the burden of proof, and the following factor on which the objector shall bear the burden of proof: A showing by the objector that the proposed collector would unreasonably restrict the planting of vegetation on presently under-developed property.

1. If the objector is unable to prove these circumstances and the applicant makes the showings required by Section 18.70.060(B), the Staff Advisor shall approve the permit.

2. If the applicant has failed to show all structures or vegetation shading of the proposed collector location in his application, the Staff Advisor may approve the permit while adding the omitted shading structures or vegetation as exemptions from this Chapter.

3. If the objector shows that an unconditional approval of the application would unreasonably restrict development of the objector's presently under-developed property, the Staff Advisor may approve the permit, adding such exemptions as are necessary to allow for reasonable development of the objector's property.

4. If the Staff Advisor finds that the application contains inaccurate information which substantially affects the enforcement of the Solar Access Permit, the application shall be denied.

C. Any decision by the Staff Advisor is subject to review before the Planning Commission as a Type II planning action according to the usual procedures contained in this Title. (Ord. 2775, 1996)

18.70.090 Limits On Solar Access Permits

A. No Solar Access Permit may be filed which would restrict any lot which has an average slope of fifteen (15) percent in the northerly direction.

B. A Solar Access Permit becomes void if the use of the solar collector is discontinued for more than twelve (12) consecutive months or if the solar collector is not installed and operative within twelve (12) months of the filing date of the Solar Access Permit. The applicant may reapply for a Solar Access Permit in accordance with Chapter 18.70.070, however, the application fee shall be waived.

18.70.100 Entry of Solar Access Permit Into Register

A. When a Solar Access Permit is granted, the Staff Advisor shall:

1. File the Solar Access Permit with the County Clerk. This shall include the owner's name and address and tax lot of the property where the recorded collector is to be located, any special exceptions or exemptions from the usual affects of a Solar Access Permit, and the tax lots of the ten (10) or fewer adjacent properties subject to the Solar Access Permit.

2. File a notice on each affected tax lot that the Solar Access Permit exists and that it may affect the ability of the property owner to

grow vegetation, and that it imposes certain obligations on the property owner to trim vegetation.

3. Send a certified letter, return receipt requested, to the applicant and to each owner and registered lessee of property subject to the Solar Access Permit stating that such permit has been granted.

B. If a Solar Access Permit becomes void under Section 18.70.090(B), the Staff Advisor shall notify the County Clerk, the recorded owner, and the current owner and lessee of property formerly subject to the Solar Access Permit.

18.70.110 Effect and Enforcement

A. No City department shall issue any development permit purporting to allow the erection of any structure in violation of the setback provisions of this Chapter.

B. No one shall plant any vegetation that shades a recorded collector, or a recorded collector location if it is not yet installed, after receiving notice of a pending Solar Access Permit application or after issuance of a permit. After receiving notice of a Solar Access Permit or application, no one shall permit any vegetation on their property to grow in such a manner as to shade a recorded collector (or a recorded collector location if it is not yet installed) unless the vegetation is specifically exempted by the permit or by this Ordinance.

C. If vegetation is not trimmed as required or is permitted to grow contrary to Section 18.70.100(B), the recorded owner or the City, on complaint by the recorded owner, shall give notice of the shading by certified mail, return receipt requested, to the owner or registered lessee of the property where the shading vegetation is located. If the property owner or lessee fails to remove the shading vegetation within thirty (30) days after receiving this notice, an injunction may be issued, upon complaint of the recorded owner, recorded lessee, or the City, by any court of jurisdiction. The injunction may order the recorded owner or registered lessee to trim the vegetation, and the court shall order the violating recorded owner or registered lessee to pay any damages to the complainant, to pay court costs, and to pay the complainant reasonable attorney's fees incurred during trial and/or appeal.

while this is going on no clearcuts

D. If personal jurisdiction cannot be obtained over either the offending property owner or registered lessee, the City may have a notice listing the property by owner, address and legal description published once a

week for four (4) consecutive weeks in a newspaper of general circulation within the City, giving notice that vegetation located on the property is in violation of this Ordinance and is subject to mandatory trimming. The City shall then have the power, pursuant to court order, to enter the property, trim or cause to have trimmed the shading parts of the vegetation, and add the costs of the trimming, court costs and other related costs as a lien against that property.

E. In addition to the above remedies, the shading vegetation is declared to be a public nuisance and may be abated through Title 9 of the Ashland Municipal Code.

F. Where the property owner or registered lessee contends that particular vegetation is exempt from trimming requirements, the burden of proof shall be on the property owner or lessee to show that an exemption applies to the particular vegetation.

Ashland Setback Table
Setback Standard "A" Slope

-.30 -.25 -.20 -.15 -.10 -.05 -.00 .05 .10 .15
Height in feet
8 * 14 10 8 7 6 5 4 4 4 3
10 * 28 20 6 4 2 0 9 8 7 7
12 * 41 31 24 20 17 15 13 21 11 10
14 * 55 41 33 27 23 20 18 16 15 13
16 * 69 51 41 34 29 25 22 20 18 17
18 * 83 61 49 41 35 30 27 24 22 20
20 * 96 72 57 47 41 35 31 28 26 24
22 * 110 82 65 54 46 40 36 32 29 27
24 * 124 92 73 61 52 46 40 36 33 30
26 * 138 102 82 68 58 51 45 40 37 34
28 * 151 113 90 75 64 56 49 44 40 37
30 * 165 123 98 81 70 61 54 48 44 40
32 * 179 133 106 88 75 66 58 53 48 44
34 * 193 143 114 95 81 71 63 57 51 47
36 * 207 154 122 102 87 76 67 61 55 50
38 * 220 164 130 108 93 81 72 65 59 54
40 * 234 174 139 115 98 86 76 69 62 57

Ashland Setback Table
Setback Standard "B" Slope

.30 -.25- .20 -.15 -.10 -.05 .00 .05 .10 .15
Height in feet
8 *0 0 0 0 0 0 0 0 0 0
10 *0 0 0 0 0 0 0 0 0 0
12 *0 0 0 0 0 0 0 0 0 0
14 *0 0 0 0 0 0 0 0 0 0
16 *0 0 0 0 0 0 0 0 0 0
18 *14 10 8 7 8 5 4 4 4 3
20 *28 20 16 14 12 10 9 8 7 7
22 *41 31 24 20 17 15 13 12 11 10
24 *55 41 33 27 23 20 18 16 15 13
26 *69 51 54 34 29 25 22 20 18 17
28 *83 61 49 41 35 30 27 24 22 20
30 *96 72 57 47 41 35 31 28 26 24
32 *110 82 65 54 46 40 36 35 29 27
34 *124 92 73 61 52 46 40 36 33 30
36 *138 102 82 68 58 51 45 40 37 34
38 *151 113 90 75 64 56 49 44 40 37
40 *165 123 98 81 70 61 54 48 44 40

Ashland Setback Table
Setback Standard "C" Slope

-.30 -.25 -.20 -.15 -.10 -.05 .00 .05 .10 .15
Height in feet
8 *0 0 0 0 0 0 0 0 0 0
10 *0 0 0 0 0 0 0 0 0 0
12 *0 0 0 0 0 0 0 0 0 0
14 *0 0 0 0 0 0 0 0 0 0
16 *0 0 0 0 0 0 0 0 0 0
18 *0 0 0 0 0 0 0 0 0 0
20 *0 0 0 0 0 0 0 0 0 0
22 *7 5 4 3 3 3 2 2 2 2
24 *21 15 12 10 9 8 7 6 6 6
26 *34 26 20 17 14 13 11 10 9 8
28 *48 36 29 24 20 18 16 14 13 12
30 *62 46 37 30 26 23 20 18 17 15
32 *76 56 45 37 32 28 25 22 20 18
34 *90 67 53 44 38 33 29 26 24 22
36 *103 77 61 51 43 38 34 30 28 25
38 *117 87 69 58 49 43 38 34 31 29
40 *131 97 77 64 55 48 43 38 35 32

Ashland Setback Table "D"
Actual Shadow Length (at solar noon on December 21st) Slope

-.30	-.25	-.20	-.15	-.10	-.05	.00	.05	.10	.15
Height in feet									
8	*55	41	33	27	23	20	18	16	15 13
10	*69	51	41	34	29	25	22	20	18 17
12	*83	61	49	41	35	30	27	24	22 20
14	*96	72	57	47	41	35	31	28	26 24
16	*110	82	65	54	46	40	36	32	29 27
18	*124	92	73	61	52	46	40	36	33 30
20	*138	102	82	68	58	51	45	40	37 34
22	*151	113	90	75	64	56	49	44	40 37
24	*165	123	98	81	70	61	54	48	44 40
26	*179	133	106	88	75	66	58	53	48 44
28	*193	143	114	95	81	71	63	57	51 47
30	*207	154	122	102	87	76	67	61	55 50
32	*220	164	130	108	93	81	72	65	59 54
34	*234	174	139	115	98	86	76	69	62 57
36	*248	184	147	122	104	91	81	73	66 60
38	*262	195	155	129	110	96	85	77	70 64
40	*275	205	163	135	116	101	90	81	73 67

Boulder (Colorado), City of. 2007. *Boulder Revised Code*.

Title 9: Land Use Regulation
Chapter 9-9: Development Standards

9-9-17 Solar Access.

(a) Purpose: Solar heating and cooling of buildings, solar heated hot water, and solar generated electricity can provide a significant contribution to the city's energy supply. It is the purpose of this section to regulate structures and vegetation on property, including city-owned and controlled property, to the extent necessary to ensure access to solar energy, by reasonably regulating the interests of neighboring property holders within the city.

(b) Applicability of Section:

(1) Private Property: All private property is subject to this section.

(2) Development Approval: No proposed development permit may be approved for any structure that would violate the basic solar access provided by this section unless the object or structure is exempt or an exception is granted by the city manager or the BOZA for such purpose.

(3) Government Property: Governmental organizations not under the jurisdiction of the city may elect to enjoy the benefits of solar access under this section if they also consent in a written agreement with the city to be bound by its restrictions.

(4) City Property: Property owned or possessed by the city is subject to, and enjoys the benefits of this section. The city may submit applications, make objections, and may take actions that are afforded to any other person subject to the provisions of this section.

(c) Solar Access Areas Established: Three solar access areas are hereby established: SA Area I, SA Area II, and SA Area III. The purpose of dividing the city into solar access areas is to provide maximum solar access protection for each area of the city consistent with planned densities, topography, and lot configurations and orientations.

(1) Solar Access Area I (RR-1, RR-2, RE, RL-1, and MH): SA Area I is designed to protect solar access principally for south yards, south walls, and rooftops in areas where, because of planned density, topography, or lot configurations or orientations, the preponderance of lots therein currently enjoy such access and where solar access of this nature would not unduly restrict permissible development. SA Area I includes all property in RR-1, RR-2, RE, RL-1, and MH zoning districts.

(2) Solar Access Area II (RL-2, RM, MU-1, MU-3, RMX, RH, and I): SA Area II is designed to protect solar access principally for rooftops in areas where, because of planned density, topography, or lot configuration or orientation, the preponderance of lots therein currently enjoy such access and where solar access of this nature would not unduly restrict permissible development. SA Area II includes all property in RL-2, RM, MU-1, MU-3, RMX, RH, and I zoning districts.

(3) Solar Access Area III - Permits - Other Zoning Districts: SA Area III includes areas where, because of planned densities, topography, or lot configurations or orientations, uniform solar access protection for south yards and walls or for rooftops may unduly restrict permissible development. Solar access protection in SA Area III is provided through permits. SA Area III initially includes property in all zoning districts other than those set forth in paragraph (c)(1) or (c)(2) of this section.

(d) Basic Solar Access Protection:

(1) Solar Fence: A solar fence is hereby hypothesized for each lot located in SA Area I and SA Area II. Each solar fence completely encloses the lot in question, and its foundation is contiguous with the lot lines. Such fence is vertical, opaque, and lacks any thickness.

(A) No person shall erect an object or structure on any other lot that would shade a protected lot's building envelope in SA Area I to a greater degree than the lot would be shaded by a solar fence twelve feet in height, between two hours before and two hours after local solar noon on a clear winter solstice day.

(B) No person shall erect an object or structure on any other lot that would shade a protected lot's building envelope in SA Area II to a greater degree than the lot would be shaded by a solar fence twenty-five feet in height, between two hours before and two hours after local solar noon on a clear winter solstice day.

(C) Solar fences are not hypothesized for lots located in SA Area III. Solar access protection in SA Area III is available under this section only through permits, as hereinafter provided.

(2) Height: Unless prohibited by another section of this title, nothing in this section prevents a structure in SA Area III from being erected up to a height of thirty-five feet if located within the allowed building envelope. However, unless an exception is granted pursuant to subsection (f) of this section, no such structure may exceed thirty-five feet in height if any such excess height would cause the structure to violate, or to increase the degree of violation of, the basic solar access protection provided for any lot in SA Area I or SA Area II.

(A) Nothing in this section shall be deemed to prevent the principal building on a lot in SA Area I or II from being erected within the building envelope up to the height of the solar fence in the area in which the structure is located.

(B) Each application for a development permit for a building of a height greater than allowed by this subsection shall:

(i) Include a graphic representation showing the shadows that would be cast by the proposed structure between two hours before and two hours after local solar noon on a clear winter solstice day;

(ii) The solar fences on all lots that the shadows would touch;

(iii) All possible obstructions of solar access protected by permit; and

(iv) Provide additional information as may be required by the city manager.

(3) Insubstantial Breaches and Existing Structures: Insubstantial breaches of the basic solar access protection or of the protection provided by a solar access permit are exempt from the application of this section. A structure in existence on the date of establishment of an applicable solar access area, or structures and vegetation in existence on the date of issuance of an applicable solar access permit, are exempt from the application of this section. For purposes of this section, structures are deemed to be in existence on the date of issuance of a development permit authorizing its construction.

(4) Temporary Solar Obstructions: Unavoidable temporary obstructions of protected solar access necessitated by construction activities or other necessary and lawful purposes are exempt to the

extent that they do not exceed ten days in any three month period and thirty days in any year.

(5) Solar Analysis: When a solar analysis is required for any review process, it shall be prepared in compliance with the methods described in materials provided by the city manager.

(e) Amendment of Solar Access Areas:

(1) Purpose: The planning board may amend solar access areas on its own motion or on petition of any person with a property interest in the subject area. A petitioner shall submit a list to the planning board of the names and addresses of all owners of property within and adjacent to the subject area and within one hundred feet to the north and sixty feet to the east and west of the subject area.

(2) Public Hearing and Notice Required: Before amending a solar access area, the planning board shall conduct a public hearing on the proposal. The board shall provide notice for the hearing pursuant to the requirements of section 9-4-3, "Public Notice Requirements," B.R.C. 1981.

(3) Review Criteria: A solar access area may be amended only after the planning board determines that one or more of the following conditions applies to the subject area:

(A) The subject area was established as a particular solar access area in error, and as currently established it is inconsistent with the purposes of the solar access areas;

(B) Permissible land uses and densities in the subject area are changing or should change to such a degree that it is in the public interest to amend the solar access area for the area; or

(C) Experience with application of this ordinance has demonstrated that:

(i) The level of solar access protection available in the subject area can be increased without significant interference with surrounding property; or

(ii) Application of the ordinance has unreasonable interference with use and enjoyment of real property in the subject area.

(4) Impact of Changes: When any area is amended from SA Area I to another solar access area or from SA Area II to SA Area III, any solar access beneficiary whose solar access is affected by such change may apply for a permit to provide solar access protection to

any solar energy system installed and in use on the date the change becomes effective.

(f) Exceptions:

(1) Purpose: Any person desiring to erect an object or structure or increase or add to any object or structure, in such a manner as to interfere with the basic solar access protection, may apply for an exception.

(2) Application Requirements: An applicant for an exception shall pay the application fee prescribed by subsection 4-20-33(b), B.R.C. 1981, and apply on a form furnished by the city manager that includes, without limitation:

(A) The applicant's name and address, the owner's name and address, and a legal description of the lot for which an exception is sought;

(B) Survey plats or other accurate drawings showing lot lines, structures, solar systems, dimensions and topography as necessary to establish the reduction of basic solar access protection expected on each lot that would be affected by the exception, together with a graphic representation of the shadows that would be cast by the proposed structure during the period from two hours before to two hours after local solar noon on a clear winter solstice day. The requirements of this subparagraph may be modified by the city manager, depending upon the nature of the exception sought;

(C) A list of all lots that may be affected by the exception, including the names and addresses of all owners of such lots;

(D) A statement and supporting information describing the reasons that less intrusive alternatives, if any, to the action that would be allowed by the exception cannot or should not be implemented; and

(E) A statement certifying that the proposed structure would not obstruct solar access protected by permit.

(3) Public Notice: The city manager shall provide public notice pursuant to section 9-4-3, "Public Notice Requirements," B.R.C. 1981.

(4) City Manager Action: The city manager may grant an exception of this section following the public notification period if:

(A) The applicant presents the manager with an affidavit of each owner of each affected lot declaring that such owner is familiar with the application and the effect the exception would

have on the owner's lot, and that the owner has no objection to the granting of the exception, and

(B) The manager determines that the application complies with the requirements in paragraph (f)(2) of this section, and

(C) The manager finds that each of the requirements of paragraph (f)(6) of this section has been met.

(5) Appeal of City Manager's Decision: The city manager's decision may be appealed to the BOZA pursuant to the procedures of section 9-4-4, "Appeals, Call-Ups and Public Hearings," B.R.C. 1981. Public notification of the hearing shall be provided pursuant to section 9-4-3, "Public Notice Requirements," B.R.C. 1981. The sign posted shall remain posted until the conclusion of the hearing.

(6) Review Criteria: In order to grant an exception, the approving authority must find that each of the following requirements has been met:

(A) Because of basic solar access protection requirements and the land use regulations:

(i) Reasonable use cannot otherwise be made of the lot for which the exception is requested;

(ii) The part of the adjoining lot or lots that the proposed structure would shade is inherently unsuitable as a site for a solar energy system; or

(iii) Any shading would not significantly reduce the solar potential of the protected lot; and

(iv) Such situations have not been created by the applicant;

(B) Except for actions under subparagraphs (f)(6)(D), (f)(6)(E), and (f)(6)(F) of this section, the exception would be the minimal action that would afford relief in an economically feasible manner;

(C) The exception would cause the least interference possible with basic solar access protection for other lots;

(D) If the proposed structure is located in a historic district designated by the city council according to section 9-11-2, "City Council May Designate or Amend Landmarks and Historic Districts," B.R.C. 1981, and if it conformed with the requirements of this section, its roof design would be incompatible with the character of the development in the historic district;

(E) If part of a proposed roof which is to be reconstructed or added to would be incompatible with the design of the remaining parts of the existing roof so as to detract materially

from the character of the structure, provided that the roof otherwise conformed with the requirements of this section;

(F) If the proposed interference with basic solar access protection would be due to a solar energy system to be installed, such system could not be feasibly located elsewhere on the applicant's lot;

(G) If an existing solar system would be shaded as a result of the exception, the beneficiary of that system would nevertheless still be able to make reasonable use of it for its intended purpose;

(H) The exception would not cause more than an insubstantial breach of solar access protected by permit as defined in paragraph (d)(3) of this section; and

(I) All other requirements for the issuance of an exception have been met. The applicant bears the burden of proof with respect to all issues of fact.

(7) Conditions of Approval: The approving authority may grant exceptions subject to such terms and conditions as the authority finds just and equitable to assist persons whose protected solar access is diminished by the exception. Such terms and conditions may include a requirement that the applicant for an exception take actions to remove obstructions or otherwise increase solar access for any person whose protected solar access is adversely affected by granting the exception.

(8) Planning Board: Notwithstanding any other provisions of this subsection, if the applicant has a development application submitted for review that is to be heard by the planning board and that would require an exception, the planning board shall act in place of the BOZA, with authority to grant exceptions concurrent with other actions on the application, pursuant to the procedures and criteria of this section.

(g) Solar Siting:

(1) Siting Requirements: For purposes of insuring the potential for utilization of solar energy in the city, all planned unit developments and subdivisions shall be designed and constructed in compliance with the following solar siting requirements:

(A) All residential units in Solar Access Areas I, II, and III have a roof surface that meets all of the following criteria:

(i) Is oriented within thirty degrees of a true east-west direction;

(ii) Is flat or not sloped towards true north;

(iii) Is physically and structurally capable of supporting at least seventy-five square feet of un-shaded solar collectors for each individual dwelling unit in the building; and

(iv) Has unimpeded solar access under either the provisions of this section or through easements, covenants, or other private agreements among affected landowners that the city manager finds are adequate to protect continued solar access for such roof surface;

(B) Each residential unit in Solar Access Area I has an exterior wall surface that meets all of the following criteria:

(i) Is oriented within thirty degrees of a true east-west direction;

(ii) Is located on the southernmost side of the unit; and

(iii) Is immediately adjacent to a heated space;

(C) Each nonresidential building with an anticipated hot water demand of one thousand or more gallons a day has a roof surface that meets all of the following criteria:

(i) Is flat or oriented within thirty degrees of a true east-west direction;

(ii) Is physically and structurally capable of supporting a solar collector or collectors capable of providing at least one-half of the anticipated hot water needs of the building; and

(iii) Has unimpeded solar access under either the provisions of this section or through easements, covenants, or other private agreements among affected landowners that the city manager finds are adequate to protect continued solar access for such roof surface;

(2) Waivers: Upon request of any applicant for a building permit or a subdivision or planned unit development approval, the approving authority may waive such of the requirements of this paragraph as it deems appropriate if it finds that any of the following criteria are met:

(A) Any structure or structures subject to the requirements of this paragraph are designed and intended to be unheated;

(B) Topographic features, land slope, shading by objects, structures, or vegetation outside the control of the applicant, or the nature of surrounding development or circulation patterns when combined with the requirements of this paragraph:

(i) Makes use of solar energy not feasible in some or all of the structures to be erected;

(ii) Will result in a substantial decrease in the density of land use in the subdivision or planned unit development;

(iii) Will result in an increase in transportation or other energy use that substantially outweighs the potential for increased solar energy use created by adherence to these requirements; or

(iv) Will be inconsistent with the floodplain management requirements of section 9-3-2, "Floodplains," B.R.C. 1981;

(C) Substantial planning, design, or other preliminary expenditures have been incurred by the applicant prior to July 1, 1982, and adherence to the standards of this paragraph would work an undue hardship on the applicant; or

(D) The applicant's proposal incorporates the following additional energy resource and conservation option points in excess of the requirements of subsection 10-5.5-2(y), "Resource Conservation – Green Points," B.R.C. 1981:

(i) 2 points - to qualify for a waiver of the requirement of subparagraph (g)(1)(A) of this section;

(ii) 3 points - to qualify for a waiver of the requirement of subparagraph (g)(1)(B) of this section; and

(iii) The city manager finds that adequate protection for any solar energy systems to be installed is provided either under the provisions of this section, or through covenants, easements, or other agreements among affected landowners.

(h) Solar Access Permits:

(1) Purpose of Solar Access Permit: In order to promote opportunities for the use of solar energy and where basic solar access protection established by this section is inadequate to protect potential solar energy users, or to insure maximum utilization of solar energy resources consistent with reasonable use of surrounding property, persons may obtain permits under this section. Beneficial use is the limit and measure of any right conferred by permit and no permit shall restrict use of other property beyond the extent reasonable to insure efficient and economical beneficial use of solar energy by the permittee. Further, no permit shall restrict the reasonable use and enjoyment of adjacent properties.

(2) Eligibility Standards: Any owner or possessor of property who has installed a solar energy system or who intends to install such

a system within a year from the date of application may apply for a permit if:

(A) The lot for which a permit is requested is included in SA Area III;

(B) The system that has been or will be installed is capable of applying to beneficial use substantial amounts of solar energy outside the hours of the day during which basic protection is provided for under this section;

(C) A solar energy system is in existence on the lot or is planned to be built within a year and the lot is changed from SA Area I to another solar access area or is changed from SA Area II to SA AREA III, resulting in a diminution or elimination of protection previously afforded the user or potential user of the solar energy system;

(D) A new structure is built on a lot in SA Area I or SA Area II after the effective date of this section whose locations renders the basic solar access protection inadequate, and the structure could not reasonably have been constructed at a location where it would have substantially benefited from the basic solar access protection provided by this section; or

(E) The applicant demonstrates that there are substantial technical, legal, or economic factors that render it infeasible to collect a reasonable amount of solar energy by utilizing the basic solar access protection available under this section without a permit. Such factors include, without limitation, structural characteristics of the applicant's building that limit possibilities for economical retrofit of a solar energy system or shading by objects, structures, or vegetation that are beyond the applicant's control and are exempt from the requirements of this section.

(3) Application Requirements: An applicant for a permit shall pay the fee prescribed by subsection 4-20-33(a), B.R.C. 1981, and complete an application in writing on a form furnished by the city manager that includes, without limitation:

(A) The applicant's name and address, the owner's name and address, and a legal description of the lot where the solar energy system is located or will be located;

(B) A statement by the applicant that the solar energy system is already installed or that the applicant intends to install such a system on the lot within one year of the issuance of the permit;

(C) A description of the existing or proposed size and location of the system, its orientation with respect to south, and its elevation and orientation from the horizontal;

(D) A statement describing the beneficial use to which solar energy is or will be applied and certifying the energy capacity of the system in BTUs or BTU equivalents and its reasonable life expectancy;

(E) A statement and accurate drawings describing the access protection desired beyond the basic solar access protection provided by this section, specifying the hours of the day, seasons of the year, and locations on the applicant's lot for which protection is desired;

(F) A description of all existing vegetation, objects, and structures wherever located that will or may in the future shade the solar energy system, together with a map or drawing showing their location to the extent possible;

(G) Information showing that the applicant has done everything reasonable in designing and locating the system so as to minimize the impact it will have on use and development on nearby land;

(H) Survey plats or other accurate drawings showing lot lines, dimensions, and topography of the lot on which the solar energy system is or will be located and all surrounding properties that are intended to be subject to the permit; and

(I) A list of all lots that may be affected by the permit, including the names and addresses of all owners of such lots.

(4) Public Notice: The city manager shall provide public notification pursuant to the requirements of section 9-4-3, "Public Notice Requirements," B.R.C. 1981.

(5) Permit Issuance: The city manager shall issue a solar access permit and may impose additional conditions or restrictions as the manager deems appropriate if the application complies with the requirements of paragraph (h)(7) of this section.

(6) Appeal of City Manager's Decision: The city manager's decision may be appealed to the BOZA pursuant to the procedures of section 9-4-4, "Appeals, Call-Ups and Public Hearings," B.R.C. 1981. Public notification of the hearing shall be provided pursuant to section 9-4-3, "Public Notice Requirements," B.R.C. 1981.

(7) Permit Requirements: In order to issue a permit, the approving authority must find that each of the following requirements has been met:

(A) The applicant meets at least one of the eligibility standards of paragraph (h)(2) of this section;

(B) The applicant has done everything reasonable in designing and locating the proposed solar energy system to minimize the impact it will have on use and development of nearby land. However, the fact that an alternate design or site may be more expensive does not necessarily establish that the applicant's failure to select that alternate design or site is reasonable. In making this finding, the board or the city manager may consider whether the additional cost of alternative, less intrusive sites or solar energy systems, if any, would exceed the difference between the adverse effects, if any, imposed on other lots by the proposed site and solar energy system and the adverse effects, if any, that would be imposed on other lots by alternative sites or solar energy systems;

(C) Issuance of the permit is consistent with reasonable use and enjoyment of nearby land, excluding landscaping considerations. Issuance of the permit will be presumed not to be consistent with reasonable use and enjoyment of nearby land if issuance would prevent any affected property owner from erecting, consistent with legal requirements, a structure of a size, character, and usefulness reasonably typical of those in existence on similar lots subject to the same zoning requirements located within one-fifth mile of the lot in question. However, nothing in this subsection prohibits issuance of a permit only because it would impose requirements on a neighboring lot owner that are more restrictive than the height or setback requirements that would otherwise apply, if reasonable use and enjoyment of such lot is preserved; and

(D) Issuance of the permit is consistent with reasonable landscaping of nearby land. In determining consistency, the board shall consider the need for any additional landscaping in the future, including any energy conservation value that such landscaping may have.

(8) Conditions of Approval: The board may grant permits subject to such terms and conditions as it finds just and equitable.

(9) Records: The city manager shall maintain complete records of all permits that have been issued and shall make them readily available for public inspection.

(10) Expiration of Permit: A solar access permit expires if:

(A) A functioning system is not installed within a year after the issuance of the permit;

(B) The solar energy system protected by the permit has not functioned to fulfill its intended purpose for a continuous period of two or more years; or

(C) The term established under paragraph (h)(11) of this section expires.

(11) Term of Solar Energy System: The city manager or the BOZA shall specify the term of each solar access permit, which shall be for the reasonable life expectancy of the particular solar energy system, as determined by the manager or the board. At the expiration of a permit, it may be renewed in the same manner as new permits are issued.

(12) Renewal of Permit: If no functioning solar energy system is installed within a year of the issuance of the permit, the city manager may grant a renewal of up to one additional year to the holder of the expired permit if the permittee demonstrates that the permittee has exercised due diligence in attempting to install the system.

(13) Enforcement: A solar access permit is enforceable by the beneficiary, if and only if the beneficiary has properly recorded the permit in the real property records of the Boulder County Clerk and Recorder with respect to each affected lot in such a manner that it could be detected through customary title search.

(A) On sale, lease, or transfer of the lot on which the protected solar system is located, the right to enforce its terms passes to the beneficial user of the system.

(B) No property owner shall be requested to remedy vegetative shading unless a protected solar system is installed and functioning.

(14) Impacts of Vegetation on an Issued Permit: Upon application of a beneficiary to the BOZA, vegetative shading may be remedied to the extent necessary to comply with the terms specified in a solar access permit. However, no vegetation in the ground and growing at the time the permit application is filed may be ordered removed or trimmed. After notice to at least the beneficiary and the vegetation owner, the board shall hold a hearing and, based on evidence submitted by any interested party, may issue any necessary order and specify the time in which actions thereunder must be performed. Absent unusual circumstances, the cost of remedying shading from vegetation not in the ground and growing at the time the permit application is filed shall be borne by the vegetation owner. If an owner or possessor of real property who receives an order to remedy

vegetative shading fails to comply within the specified time, the city manager may order the condition remedied and charge the actual cost thereof to the person to whom the order is directed, who shall pay the bill. If any person fails or refuses to pay when due any charge imposed under this subsection, the manager may, in addition to taking other collection remedies, certify due and unpaid charges to the Boulder County Treasurer for collection as provided in section 2-2-12, "City Manager May Certify Taxes, Charges, and Assessments to County Treasurer for Collection," B.R.C. 1981.

(i) Authority to Issue Regulations: The city manager and the BOZA are each authorized to adopt rules and regulations necessary in order to interpret or implement the provisions of this section that each administers.
Ordinance Nos. 7484 (2006); 7522 (2007); 7535 (2007)

Solar Exemptions

In certain circumstances, if the proposed structure shades an adjacent lot more than shades cast by the solar fence, the structure may still be in compliance. Compliance may be demonstrated through completion of an actual shadow analysis.

1. If an adjacent property is already shaded by existing buildings, mountains or other permanent objects (not including vegetation such as trees), you can build anything which does not add to those existing shadows.
2. If the proposed building or addition would shade part of an adjacent property which is outside the building envelope, the building or addition is exempt from the provisions of the solar ordinance.
3. A minimal amount of shading, as outlined in the solar ordinance, may qualify for an exemption and is not prohibited.

Solar Exception

If your plans actual shadows shade the building envelope of an adjacent property greater than the shadow cast by the solar fence, your options are to redesign your project or apply for a solar exception. Administrative exceptions can be considered if the owners of impacted lots have no objection, and the application complies with the criteria for exception found in section 9-9-17(f) Boulder Revised Code 1981.

A public hearing before the Board of Zoning Adjustment will be required when either the affected property owner objects to the increased shading or staff finds the proposal does not meet the criteria for a solar exception. Applications for an administrative exception or an exception from the Board of Zoning Adjustment are available from the Planning Department.

Solar Siting in New Construction

The ordinance sets standards for the siting of new development. It requires that all units in new developments which will not incorporate solar features include to the maximum extent possible:

1. long axis within 30 degrees of east-west;
2. roofs which are physically and structurally capable of supporting at least 75 square feet of solar collectors per dwelling unit; and
3. unimpeded solar access through the provisions of this ordinance or through private covenants.

Non-residential buildings have similar requirements for siting. Figure 2 is an example of a small project where 100% of the units are sited in accordance with the provisions of this ordinance.

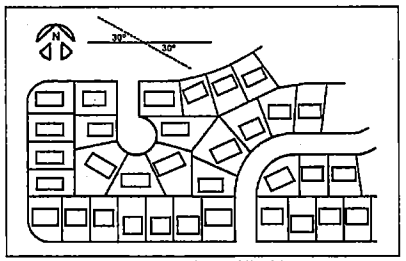
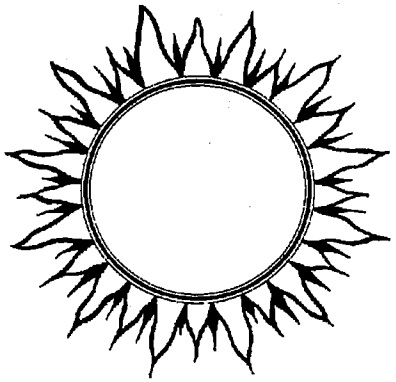


Figure 2. Typical Subdivision Site Plan

The planning staff or the Planning Board may waive the solar siting requirement for reasons of topography or lot configuration; substantial planning and design expenditures incurred before ordinance passage; or reduction in other aspects of energy efficient site planning. The incorporation of solar energy systems or other renewable energy sources may also be viable alternatives to the solar siting requirements.

If you have any questions or would like more information about the requirements of the solar access ordinance, please contact the City of Boulder Planning and Development Services Department at 303-441-1880. Also, the complete ordinance is available on the City website at: www.boulderplandevelop.net

Solar Access Guide



or Solar Shadow Analysis

City of Boulder
Building Services Center
P.O. Box 791, 1739 Broadway, Third Floor
Boulder, CO 80306
Phone 303-441-1880 • Fax 303-441-3241
Website www.boulderplandevelop.net
Revised Aug. 2006, 815.pdf

Solar Access

In response to the diminishing supply and increasing cost of conventional energy resources, the City of Boulder enacted an ordinance to protect the use of solar energy. The ordinance guarantees access to sunlight for homeowners and renters in the city. This is done by setting limits on the amount of permitted shading by new construction and requiring that new buildings be sited to provide good solar access.

The degree of solar access protection is defined by either a 12 foot or 25 foot hypothetical "solar fence" on the property lines of the protected buildings. The ordinance is designed to protect access for a four hour period on December 21st. Under most circumstances, new structures will not be allowed to shade adjacent lots to a greater extent than the applicable solar fence.

There are three Solar Access Areas in the City of Boulder. Following is a list of zoning districts and which solar access area they fall into:

Solar Access Area I

Lots are protected by a 12 foot "solar fence" as mentioned above. These lots are in RR-1, RR-2, RE, RL-1 and MH zoning districts.

Solar Access Area II

Lots are protected by a 25 foot "solar fence". These lots are in RL-2, RM, MU-1, MU-3, RMX, RH, and I zoning districts.

Solar Access Area III

All other zoning districts are in Solar AccessAreaIII and are protected through the solar permit process

A solar access permit is available to those who have installed or who plan to install a solar energy system and need more protection than is provided automatically in Solar Access Areas I and II. The permit application must include detailed information describing the solar energy system, existing structures and vegetation on adjacent properties and the location and dimensions of the solar easement requested. Solar access permits do not affect vegetation which exists at the time of permit application submittal. Solar access permit application forms are available from the City Department of Planning and Community Development. The Board of Zoning Adjustment will review applications and award permits.

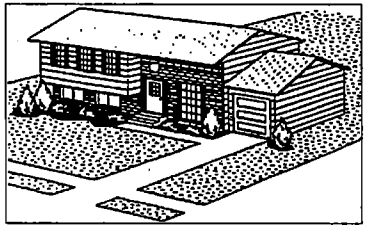
Members of the City of Boulder planning staff are available to answer questions regarding solar access and will be responsible for assuring that all plans are in compliance with the ordinance.

Compliance

When applying for a building permit, an adjusted shadow analysis must be submitted to Inspection Services. Identifying the height and orientation of the proposed building and the slope of the land, the shadow that it will cast on the 21st of December between 10 a.m. and 2 p.m. can be approximated. Complete the following steps and submit the results with the building permit application:

1. *Draw the proposed site plan.* The solar access site plan should be drawn to a scale of measurement (preferably 1:10) and show existing improvements, and the proposed building or addition, property lines, and a north arrow.

2. *Determine the height of the shadow casting portion of the roof.* Label the height of corners and peaks of the proposed roof structure on the site plan.



House to be analyzed below

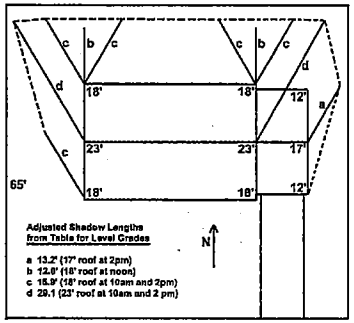


Figure 1. Simplified Shadow Analysis for House in Solar Access Area 1 (illustration only—not to scale)

Table 1. Adjusted Solar Shadow Lengths for Level Grades

Solar Access Area I				*Solar Access Area II*			
Bldg	Length of Shadow			Bldg	Length of Shadow		
Ht	10am	Noon	2pm	Ht	10am	Noon	2pm
13'	2.6'	2.0'	2.6'	26'	2.6'	2.0'	2.6'
14'	5.3'	4.0'	5.3'	27'	5.3'	4.0'	5.3'
15'	7.9'	6.0'	7.9'	28'	7.9'	6.0'	7.9'
16'	10.6'	8.0'	10.6'	29'	10.6'	8.0'	10.6'
17'	13.2'	10.0'	13.2'	30'	13.2'	10.0'	13.2'
18'	15.9'	12.0'	15.9'	31'	15.9'	12.0'	15.9'
19'	18.5'	14.0'	18.5'	32'	18.5'	14.0'	18.5'
20'	21.2'	16.0'	21.2'	33'	21.2'	16.0'	21.2'
21'	23.8'	18.0'	23.8'	34'	23.8'	18.0'	23.8'
22'	26.5'	20.0'	26.5'	35'	26.5'	20.0'	26.5'
23'	29.1'	22.0'	29.1'	36'	29.1'	22.0'	29.1'
24'	31.8'	24.0'	31.8'	37'	31.8'	24.0'	31.8'
25'	34.4'	26.0'	34.4'	38'	34.4'	26.0'	34.4'
26'	37.0'	28.0'	37.0'	39'	37.0'	28.0'	37.0'
27'	39.7'	30.0'	39.7'	40'	39.7'	30.0'	39.7'
28'	42.3'	32.0'	42.3'	41'	42.3'	32.0'	42.3'
29'	45.0'	33.9'	45.0'	42'	45.0'	33.9'	45.0'
30'	47.6'	35.9'	47.6'	43'	47.6'	35.9'	47.6'
31'	50.3'	37.9'	50.3'	44'	50.3'	37.9'	50.3'
32'	52.9'	39.9'	52.9'	45'	52.9'	39.9'	52.9'
33'	55.6'	41.9'	55.6'	46'	55.6'	41.9'	55.6'
34'	58.2'	43.9'	58.2'	47'	58.2'	43.9'	58.2'
35'	60.9'	45.9'	60.9'	48'	60.9'	45.9'	60.9'
				49'	63.5'	47.9'	63.5'
				50'	66.2'	49.9'	66.2'
				51'	68.8'	51.9'	68.8'
				52'	71.5'	53.9'	71.5'
				53'	74.1'	55.9'	74.1'
				54'	76.7'	57.9'	76.7'
				55'	79.4'	59.9'	79.4'

3. *Draw the approximate shadow cast by the proposed structure.* If your building is on a level lot and if the adjacent property to the north, east and west is part of the same solar access area, use Table 1 to check that your building's shadow is in compliance with the ordinance. Use the shadow pattern illustrated in Figure 1 as an example. Noon shadow lengths are projected directly north. Draw the 10:00 a.m. and 2:00 p.m. shadows at 30 degrees west of north and 30 degrees east of north. After the shadow lines have been drawn, connect the outer band of points to determine the four hour shadow pattern.

Note: If your proposed structure is not located on a level lot, please contact the Planning Department for information on adjusting actual shadow lengths for changes in grade.

4. *If the shadow cast is entirely within your property lines, the proposed building or addition is in compliance.*

5. *If the adjusted shadows cast by the proposed structure do not fall within your property lines, redesign your project or prepare a shadow analysis based on the actual shadows cast by the proposed structure.* An actual shadow analysis illustrates the true impact of all proposed shading on adjacent properties, and is required to demonstrate that the portion of the shadow which exceeds the solar fence falls within an exempt area. An actual analysis is also required as part of an application for an administrative or a board level solar exception. Apply shadow lengths listed in Table 2 to prepare an actual solar analysis.

Table 2. Actual Shadow Lengths On December 21 Solar Shadow Analysis Table for Level Grades

Bldg.	Length of Shadow		
Ht.	10 am	Noon	2 pm
10'	26.5'	20.0'	26.5'
11'	29.1'	22.0'	29.1'
12'	31.8'	24.0'	31.8'
13'	34.4'	26.0'	34.4'
14'	37.0'	28.0'	37.0'
15'	39.7'	30.0'	39.7'
16'	42.3'	32.0'	42.3'
17'	45.0'	34.0'	45.0'
18'	47.6'	36.0'	47.6'
19'	50.3'	38.0'	50.3'
20'	52.9'	40.0'	52.9'
21'	55.6'	42.0'	55.6'
22'	58.2'	44.0'	58.2'
23'	60.9'	46.0'	60.9'
24'	63.5'	48.0'	63.5'
25'	66.2'	50.0'	66.2'
26'	68.8'	52.0'	68.8'
27'	71.5'	54.0'	71.5'
28'	74.1'	56.0'	74.1'
29'	76.7'	58.0'	76.7'
30'	79.4'	60.0'	79.4'
31'	82.0'	62.0'	82.0'
32'	84.7'	64.0'	84.7'
33'	87.3'	66.0'	87.3'
34'	89.9'	68.0'	89.9'
35'	92.6'	71.0'	92.6'
36'	95.3'	72.0'	95.3'
37'	97.9'	74.0'	97.9'
38'	100.6'	76.0'	100.6'
39'	103.2'	78.0'	103.2'
40'	105.9'	80.0'	105.9'
41'	108.5'	82.0'	108.5'
42'	111.1'	84.0'	111.1'
43'	113.8'	86.0'	113.8'
44'	116.4'	88.0'	116.4'
45'	119.1'	90.0'	119.1'
46'	121.7'	92.0'	121.7'
47'	124.4'	94.0'	124.4'
48'	127.0'	96.0'	127.0'
49'	129.7'	98.0'	129.7'
50'	132.3'	100.0'	132.3'
51'	135.0'	102.0'	135.0'
52'	137.6'	104.0'	137.6'
53'	140.3'	106.0'	140.3'
54'	142.9'	108.0'	142.9'
55'	145.6'	110.0'	145.6'

1017 SOLAR ACCESS ORDINANCE FOR NEW DEVELOPMENT (3/24/05)

1017.01 PURPOSE

The purposes of the solar access ordinance for new development are to ensure that land is divided so that structures can be oriented to maximize solar access and to minimize shade on adjoining properties from structures and trees.

1017.02 APPLICATION OF SECTION (3/24/05)

The solar design standard in Subsection 1017.04 shall apply to applications for a development to create lots in VR-4/5, VR-5/7, R-5, R-7, R-8.5, R-10, R-15, R-20, and R-30 zones and for dwellings in any zone, except to the extent the Planning Director finds the applicant has shown that one or more of the conditions listed in Subsections 1017.05 and 1017.06 exist, and exemptions or adjustments provided for therein are warranted. (3/24/05)

1017.03 DEFINITIONS

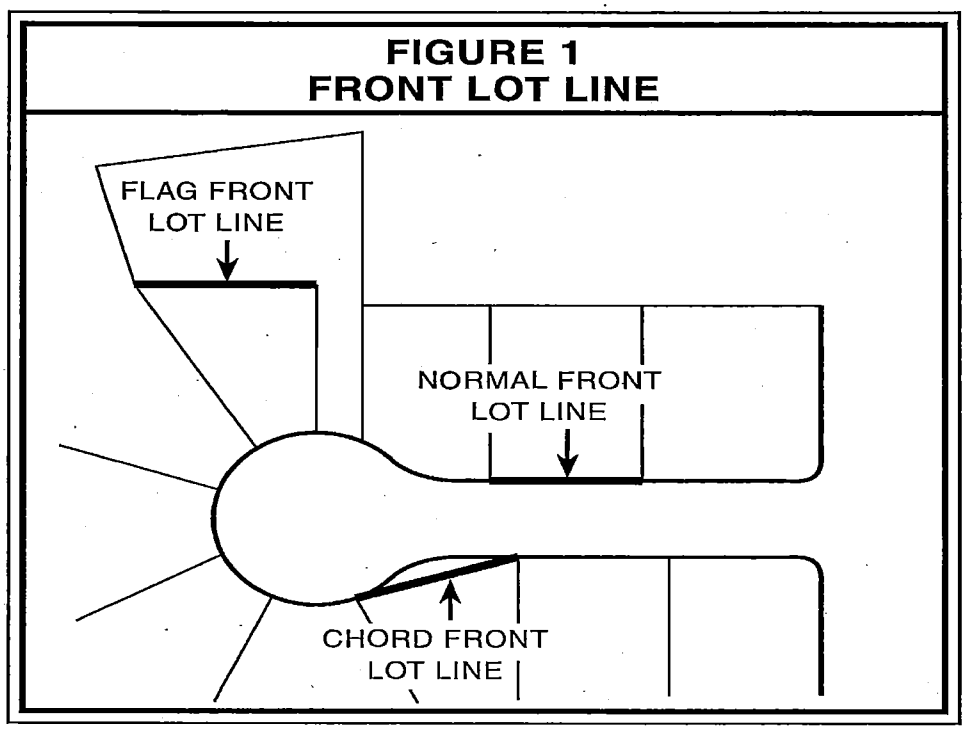
Words and terms used in Sections 1017, 1018, and 1019 are defined as follows:

A. CROWN COVER: The area within the drip line or perimeter of the foliage of a tree.

B. DEVELOPMENT: Any short plat, partition, subdivision, or planned unit development created under the County's land division or zoning regulations.

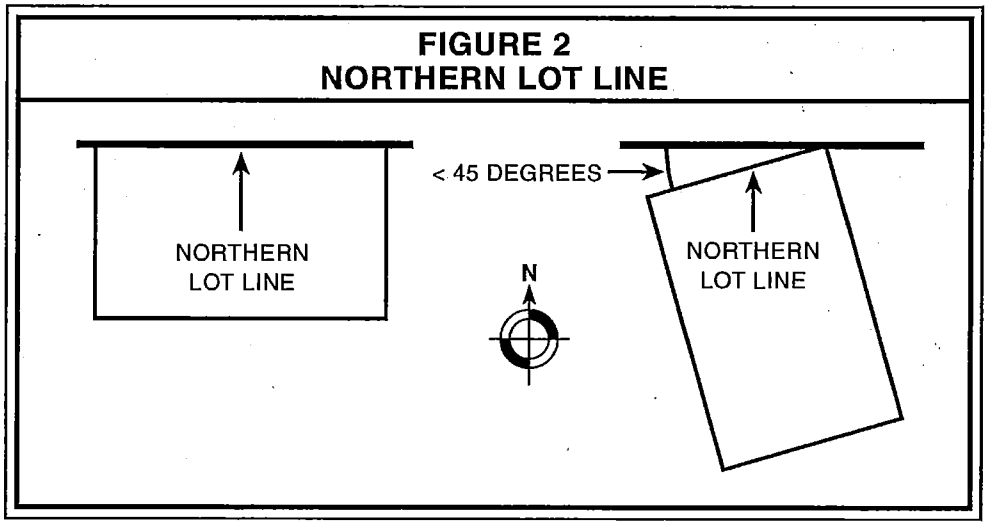
C. EXEMPT TREE OR VEGETATION: The full height and breadth of vegetation that the Planning Director has identified as "solar friendly"; and any vegetation listed as exempt on a plat map, a document recorded with the plat, or a solar access permit.

D. FRONT LOT LINE: For the purposes of the solar access regulations, a lot line abutting a street. For corner lots, the front lot line is that with the narrowest frontage. When the lot line abutting a street is curved, the front lot line is the chord or straight line connecting the ends of the curve. For a flag lot, the front lot line is the lot line that is most parallel to and closest to the street, excluding the pole portion of the flag lot (see Figure 1).



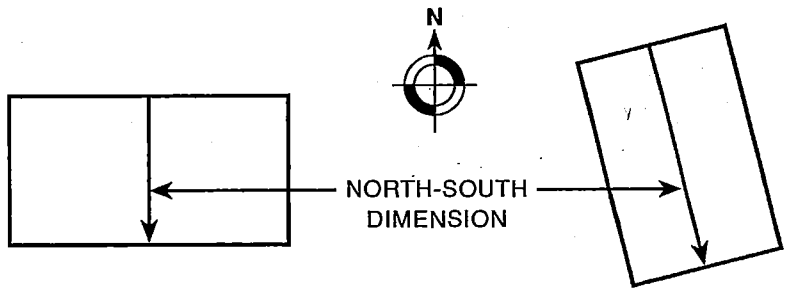
E. NONEXEMPT TREE OR VEGETATION: Vegetation that is not exempt.

F. NORTHERN LOT LINE: The lot line that is the smallest angle from a line drawn east-west and intersecting the northernmost point of the lot, excluding the pole portion of a flag lot. If the north line adjoins an undevelopable area other than a required yard area, the northern lot line shall be at the north edge of such undevelopable area. If two lot lines have an identical angle relative to a line drawn east-west, the northern lot line shall be a line 10 feet in length within the lot parallel with and at a maximum distance from the front lot line.



G. NORTH-SOUTH DIMENSION: The length of a line beginning at the midpoint of the northern lot line and extending in a southerly direction perpendicular to the northern lot line until it reaches a property boundary (see Figure 3).

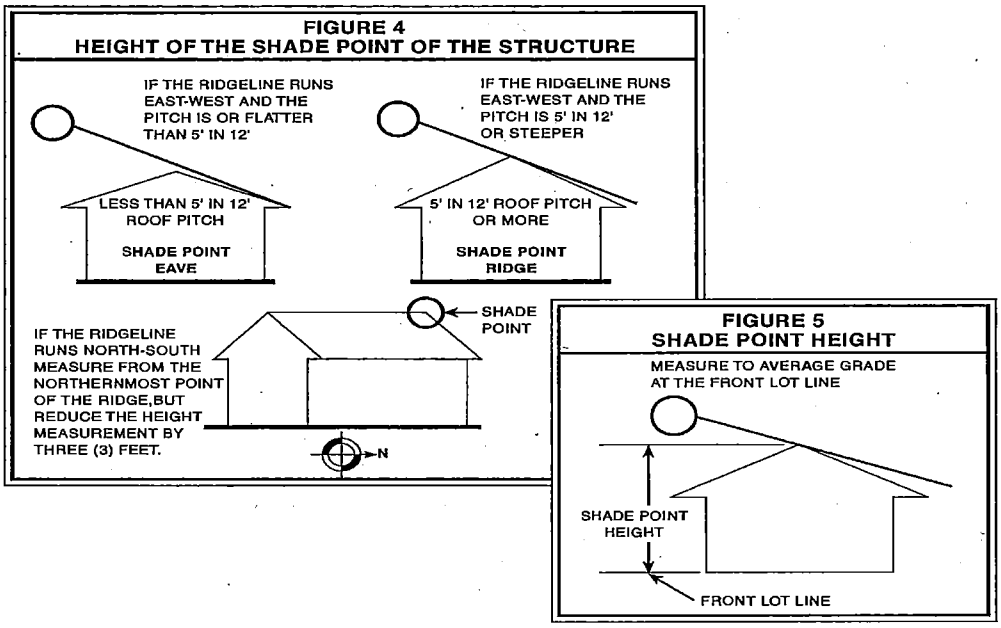
FIGURE 3
NORTH-SOUTH DIMENSION OF THE LOT



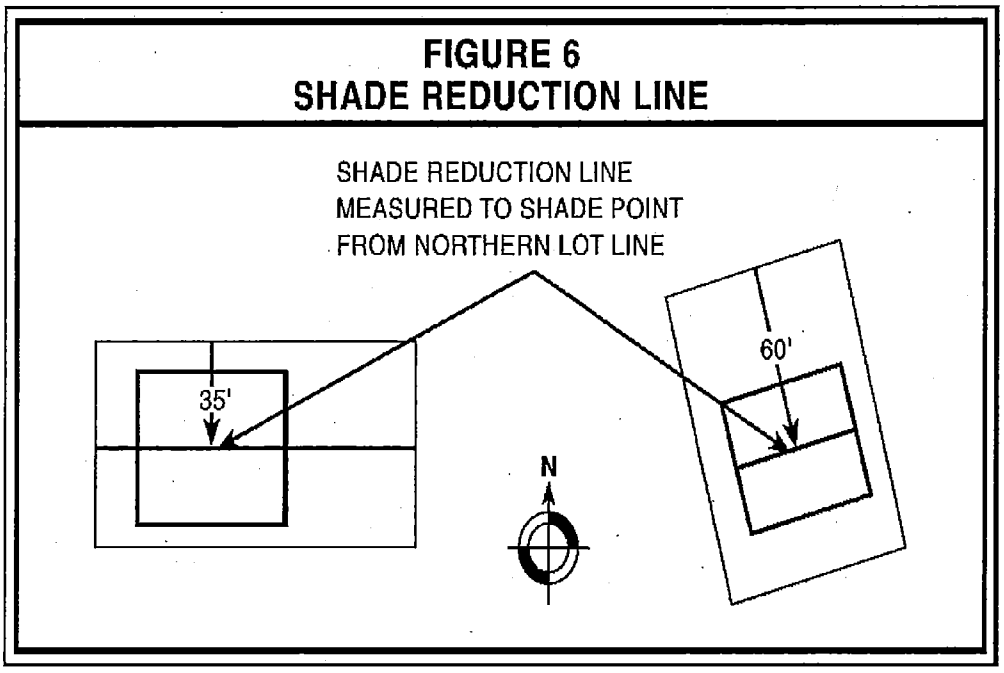
H. PROTECTED SOLAR BUILDING LINE: A line on a plat or map recorded with the plat that identifies the location on a lot where a point two feet above may not be shaded by structures or nonexempt trees (see Figure 10).

I. SHADE: A shadow cast by the shade point of a structure or vegetation when the sun is at an altitude of 21.3 degrees and an azimuth ranging from 22.7 degrees east and west of true south.

J. SHADE POINT: The part of a structure or nonexempt tree that casts the longest shadow onto the adjacent northern lot(s) when the sun is at an altitude of 21.3 degrees and an azimuth ranging from 22.7 degrees east and west of true south, except a shadow cause by a narrow object such as a mast or whip antenna, a dish antenna with a diameter of 3 feet or less, a chimney, utility pole, or wire. The height of the shade point shall be measured from the shade point to either the average elevation at the front lot line or the elevation at the midpoint of the front lot line. If the shade point is located at the north end of a ridgeline of a structure oriented within 45 degrees of a true north-south line, the shade point height computed according to the preceding sentence may be reduced by 3 feet. If a structure has a roof oriented within 45 degrees of a true east-west line with a pitch that is flatter than 5 feet (vertical) in 12 feet (horizontal), the shade point will be the eaves of the roof. If such a roof has a pitch that is 5 feet in 12 feet or steeper, the shade point will be the peak of the roof (see Figures 4 and 5).



K. SHADE REDUCTION LINE: A line drawn parallel to the northern lot line that intersects the shade point (see Figure 6).



L. SHADOW PATTERN: A graphic representation of an area that would be shaded by the shade point of a structure or vegetation when the sun is at an altitude of 21.3 degrees and an azimuth ranging between 22.7 degrees east and west of true south (see Figure 12).

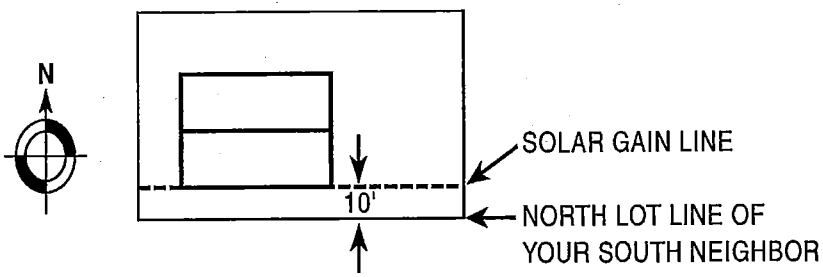
M. SOLAR ACCESS HEIGHT LIMIT: A series of contour lines establishing the maximum permitted height for nonexempt vegetation on lots affected by a Solar Access Permit (see Figure 11).

N. SOLAR ACCESS PERMIT: A document issued by the County that describes the maximum height that nonexempt vegetation is allowed to grow on lots to which a solar access permit applies.

O. SOLAR FEATURE: A device or combination of devices or elements that use or will use direct sunlight as a source of energy for such purposes as heating or cooling a structure, heating or pumping water, or generating electricity. Examples of a solar feature include a solar greenhouse, a solar hot water heater, or a window that contains at least 20 square feet of glazing oriented within 45 degrees east and west of true south. A solar feature may be used for purposes in addition to collecting solar energy, including but not limited to serving as a structural member or part of a roof, wall, or window. A south-facing wall without windows and without other features that use solar energy is not a solar feature for purposes of this ordinance.

P. SOLAR GAIN LINE: A line parallel to the northern property line(s) of the lot(s) south of and adjoining a given lot, including lots separated only by a street, that intersects the solar feature on that lot.

FIGURE 7
SOLAR GAIN LINE



Q. SOUTH OR SOUTH-FACING: True south, or 20 degrees east of magnetic south.

R. SUNCHART: One or more photographs that plot the position of the sun between 10:30 a.m. and 1:30 p.m. on January 21, prepared pursuant to guidelines issued by the Planning Director (?). The sunchart shall show the southern skyline through a transparent grid on which is imposed solar altitude for a 45-degree and 30-minute northern latitude in 10-degree increments and solar azimuth from true south in 15-degree increments.

S. UNDEVELOPABLE AREA: An area that cannot be used practicably for a habitable structure because of natural conditions, such as slopes exceeding 20 percent in a direction greater than 45 degrees east or west of true south, severe topographic relief, water bodies, or conditions that isolate one portion of a property from another portion so that access is not practicable to the unbuildable portion; or man-made conditions, such as existing development which isolates a portion of the site and prevents its further development; setbacks or development restrictions that prohibit development of a given area of a lot by law or private agreement; or existence or absence of easements or access rights that prevent development of a given area.

1017.04 DESIGN STANDARD

At least 80 percent of the lots in a development subject to this ordinance shall comply with one or more of the options in this subsection.

A. Basic Requirement: (See Figure 9). A lot complies with Subsection 1017.04 if it

1. Has a north-south dimension of 90 feet or more; and

FIGURE 9
SOLAR LOT OPTION 1: BASIC REQUIREMENTS

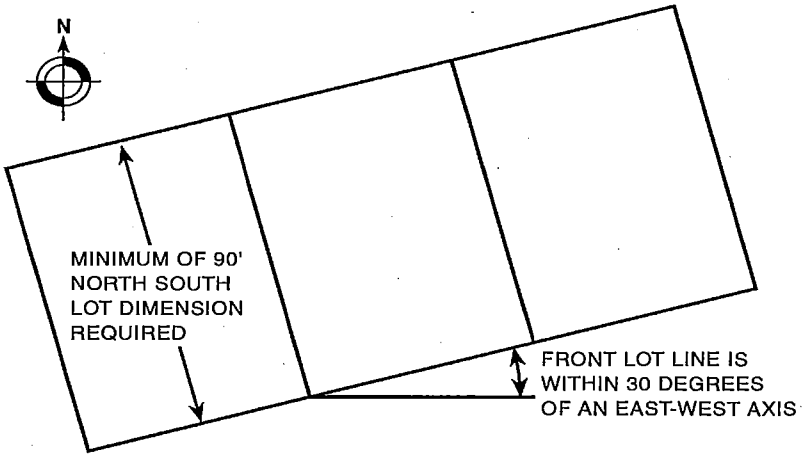
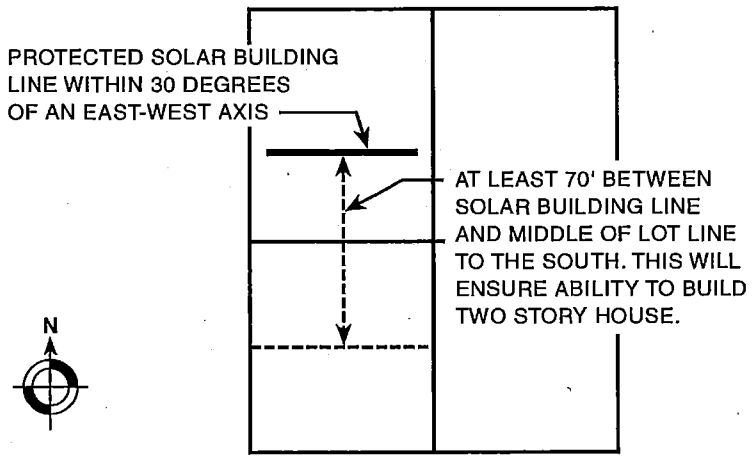


FIGURE 10
SOLAR LOT OPTION 2: PROTECTED SOLAR BUILDING LINE



2. Has a front lot line that is oriented within 30 degrees of a true east-west axis.

B. Protected Solar Building Line Option: (See Figure 10). In the alternative, a lot complies with Subsection 1017.04 if a solar building line is used to protect solar access as follows:

1. A protected solar building line for the lot to the north is designated on the plat or documents recorded with the plat; and

2. The protected solar building line for the lot to the north is oriented within 30 degrees of a true east-west axis; and

3. There is at least 70 feet between the protected solar building line on the lot to the north and the middle of the north-south dimension of the lot to the south, measured along a line perpendicular to the protected solar building line; and

4. There is at least 45 feet between the protected solar building line and the northern edge of the buildable area of the lot, or habitable structures are situated so that at least 80 percent of their south-facing wall will not be shaded by structures or nonexempt vegetation.

C. Performance Option: In the alternative, a lot complies with Subsection 1017.04 if:

1. Habitable structures built on that lot will have their long axis oriented within 30 degrees of a true east-west axis and at least 80 percent of their ground floor south wall protected from the shade of structures and nonexempt trees; or

2. Habitable structures built on that lot will have at least 32 percent of their glazing and 500 square feet of their roof area facing within 30 degrees of south and protected from the shade of structures and nonexempt trees.

1017.05 EXEMPTIONS FROM DESIGN STANDARD

A development is exempt from Subsection 1017.04 if the Planning Director finds the applicant has shown that one or more of the following conditions apply to the site. A development is partially exempt from Subsection 1017.04 to the extent the Planning Director finds the applicant has shown that one or more of the following conditions apply to a corresponding portion of the site.

If a partial exemption is granted for a given development, the remainder of the development shall comply with Subsection 1017.04.

A. Slopes: The site, or a portion of the site for which the exemption is sought, is sloped 20 percent or more in a direction greater than 45 degrees east or west of true south, based on a topographic survey by a licensed professional land surveyor.

B. Off-site Shade: The site, or a portion of the site for which the exemption is sought, is within the shadow of off-site features such as, but not limited to, structures, topography, or nonexempt vegetation, which will remain after development occurs on the site from which the shade is originating.

   1. Shade from an existing or approved off-site dwelling in a single family residential zone and from topographic features is assumed to remain after development of the site.

   2. Shade from an off-site structure in a zone other than a single family residential zone is assumed to be the shadow pattern of the existing or approved development thereon or the shadow pattern that would result from the largest structure allowed at the closest setback on adjoining land, whether or not that structure now exists.

   3. Shade from off-site vegetation is assumed to remain after development of the site if: the trees that cause it are situated in a required setback; or they are part of a developed area, public park, or legally reserved open space; or they are in or separated from the developable remainder of a parcel by an undevelopable area or feature; or they are part of landscaping required pursuant to local law.

   4. Shade from other off-site sources is assumed to be shade that exists or that will be cast by development for which applicable local permits have been approved on the date a complete application for the development is filed.

C. On-site Shade: The site, or a portion of the site for which the exemption is requested:

1. Is within the shadow pattern of on-site features such as, but not limited to, structures and topography which will remain after the development occurs; or

2. Contains nonexempt trees at least 30 feet tall and, when measured 4 feet above the ground, more than 6 inches in diameter, which have a crown cover over at least 80 percent of the site or relevant portion. The applicant can show such crown cover exists using a scaled survey or an aerial photograph. If granted, the exemption shall be approved subject to the condition that the applicant preserve at least 50 percent of the trees that cause the shade that warrants the exemption. The applicant shall file a note on the plat or other documents in the office of the County Recorder binding the applicant to comply with this requirement. The County shall be made a party of any covenant or restriction created to enforce any provision of this ordinance. The covenant or restriction shall not be amended without written County approval.

3. Compliance with Subsection 1017.04 would prevent the development from meeting the minimum density provisions in Section 1012. (11/5/98)

1017.06 ADJUSTMENT TO DESIGN STANDARD

The Planning Director shall reduce the percentage of lots that must comply with Subsection 1017.04 to the minimum extent necessary if he/she finds the applicant has shown that one or more of the following site characteristics apply:

A. Density and Cost: If the design standard in Subsection 1017.04 is applied, either the resulting density is less than that proposed, the minimum density is less than that required in Section 1012, or on-site site development costs (e.g., grading, water, storm drainage and sanitary systems, and roads) and solar related off-site site development costs are at least 5 percent more per lot than if the standard is not applied. The following conditions, among others, could constrain the design of a development in such a way that compliance with Subsection 1017.04 would reduce density or increase per-lot costs in this manner. The applicant shall show which, if any, of these or other similar site characteristics apply in an application for a development. (11/5/98).

1. The portion of the site for which the adjustment is sought has a natural grade that is sloped 10 percent or more and is oriented greater than 45 degrees east or west of true south, based on a topographic survey of the site by a professional land surveyor.

2. There is a significant natural feature on the site, identified as such in the Comprehensive Plan or development ordinance, that prevents given streets or lots from being oriented for solar access, and it will exist after the site is developed.

3. Existing road patterns must be continued through the site or must terminate on-site to comply with applicable road standards or public road plans in a way that prevents given streets or lots in the development from being oriented for solar access.

4. An existing public easement or right-of-way prevents given streets or lots in the development from being oriented for solar access.

B. Development Amenities: If the design standard in Subsection 1017.04 is applied to a given lot or lots, significant development amenities that would otherwise benefit the lot(s) will be lost or impaired. Evidence that a significant diminution in the market value of the lot(s) would result from having the lot(s) comply with Subsection 1017.04 is relevant to whether a significant development amenity is lost or impaired.

C. Existing Shade: Nonexempt trees at least 30 feet tall and, when measured 4 feet above the ground, more than 6 inches in diameter, have a crown cover over at least 80 percent of the lot and at least 50 percent of the crown cover will remain after development of the lot. The applicant can show such crown cover exists using a scaled survey of nonexempt trees on the site or using an aerial photograph.

1. Shade from nonexempt trees is assumed to remain if: the trees are situated in a required setback; or they are part of an existing or proposed park, open space, or recreational amenity; or they are separated from the developable remainder of their parcel by an undevelopable area or feature; or they are part of landscaping required pursuant to local law; and the trees do not need to be removed for a driveway or other development.

2. Also, to the extent the shade is caused by on-site trees or off-site trees on land owned by the applicant, the shade is assumed to remain if the applicant files in the office of the County Recorder a covenant binding the applicant to retain the trees causing the shade on the affected lots.

1017.07 PROTECTION FROM FUTURE SHADE

Structures and nonexempt vegetation must comply with the Solar Balance Point Ordinance for existing lots (Section 1018) if located on a lot that is subject to the solar design standard in Subsection 1017.04 or if located on a lot south of and adjoining a lot that complies with Subsection 1017.04.

The applicant shall file a note on the plat or other documents in the office of the County Recorder binding the applicant and subsequent purchasers to comply with the future shade protection standards in Subsection 1017.07. The County shall be made a party of any covenant or restriction created to enforce any provision of this ordinance. The covenant or restriction shall not be amended without written County approval.

1017.08 APPLICATION

An application for approval of a development subject to this ordinance shall include:

A. Maps and text sufficient to show the development complies with the solar design standard of Subsection 1017.04, except for lots for which an exemption or adjustment from Subsection 1017.04 is requested, including at least:

1. The north-south lot dimension and front lot line orientation of each proposed lot.

2. Protected solar building lines and relevant building site restrictions, if applicable.

3. For the purpose of identifying trees exempt from Subsection 1017.07, a map showing existing trees at least 30 feet tall and over 6 inches diameter at a point 4 feet above grade, indicating their height, diameter, and species, and stating that they are to be retained and are exempt.

4. Copies of all private restrictions relating to solar access.

B. If an exemption or adjustment to Subsection 1017.04 is requested, maps and text sufficient to show that given lots or areas in the development comply with the standards for such an exemption or adjustment in Subsection 1017.05 and 1017.06, respectively.

1017.09 REVIEW PROCESS

Review of new developments for compliance with these standards shall be a part of the review process stipulated in Section 1105 and Section 1106. (6/6/02)

FIGURE 11
SOLAR ACCESS HEIGHT LIMIT

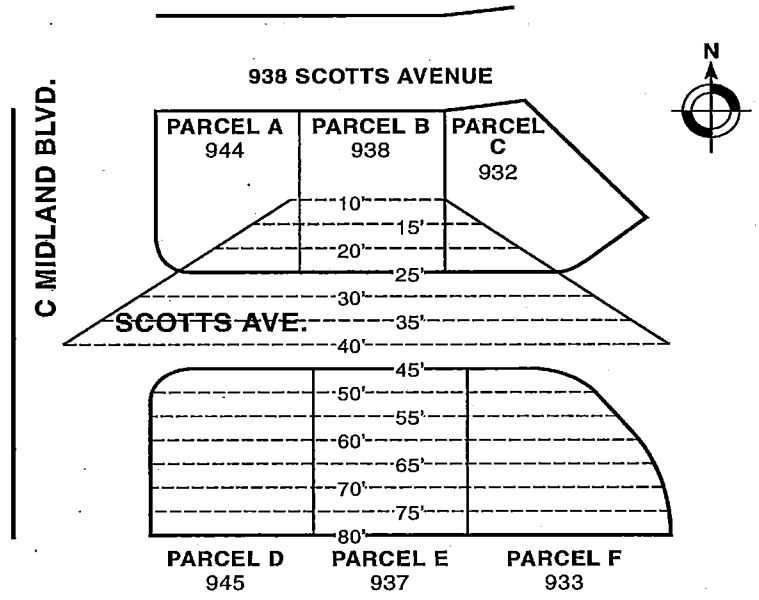
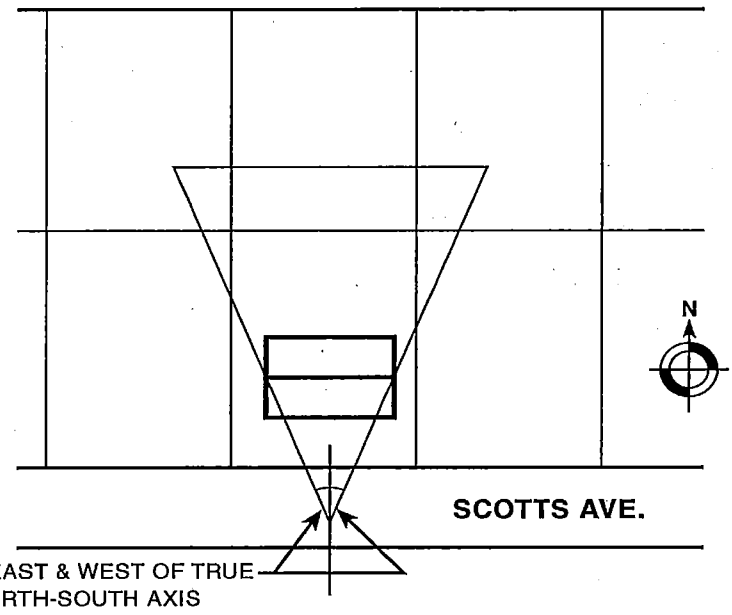


FIGURE 12
SHADOW PATTERN



1018 SOLAR BALANCE POINT/INFILL ORDINANCE (3/24/05)

1018.01 PURPOSE

The purposes of this ordinance are to promote the use of solar energy, to minimize the shading of structures by structures and accessory structures, and, where applicable, to minimize the shading of structures by trees. Decisions related to this ordinance are intended to be ministerial.

1018.02 APPLICATION OF SECTION (3/24/05)

This section shall apply to an application for a building permit for all structures in VR-4/5, VR-5/7, R-7, R-8.5, R-10, R-15, R-20, and R-30 zones and all detached single-family dwellings in any zone, except to the extent the Planning Director finds the applicant has shown that one or more of the conditions listed in Subsections 1018.06 and 1018.07 exists, and exemptions or adjustments provided for therein are warranted. In addition, nonexempt vegetation planted on lots subject to Subsection 1017.07 shall comply with the shade point height standards as provided in Subsections 1018.05 and 1018.06. (3/24/05)

1018.03 DEFINITIONS

Words and terms used in this section shall be as defined under Subsection 1017.03.

1018.04 SOLAR SITE PLAN REQUIRED

An applicant for a building permit for a structure subject to this ordinance shall submit a site plan that shows the maximum shade point height allowed under Subsection 1018.05 and the allowed shade on the proposed structure's solar features as provided in Subsection 1018.08. If applicable, the site plan also shall show the solar balance point for the structure as provided in Subsection 1018.09.

1018.05 MAXIMUM SHADE POINT HEIGHT STANDARD

The height of the shade point shall comply with either A or B below.

A. Basic Requirement: The height of the shade point shall be less than or equal to the height specified in Table A or computed using the following formula. If necessary, interpolate between the 5-foot dimensions listed in Table A.

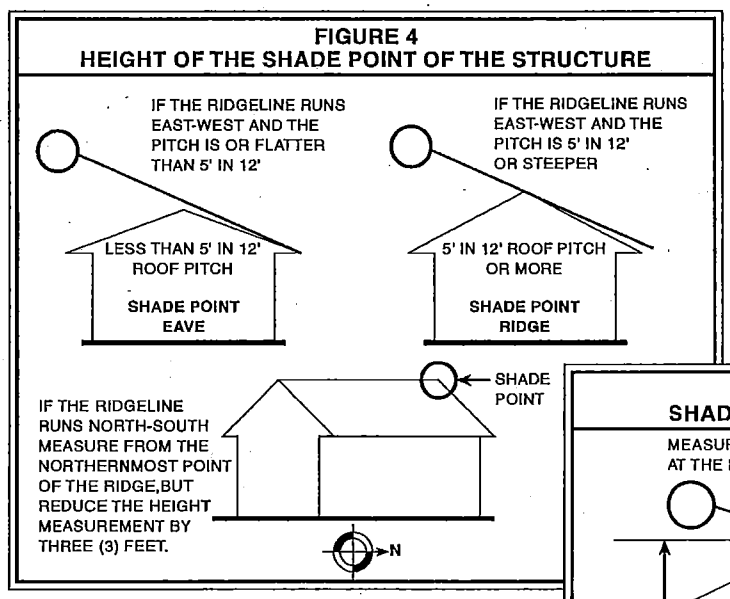
$$H = \frac{(2 \times SRL) - N + 150}{5}$$

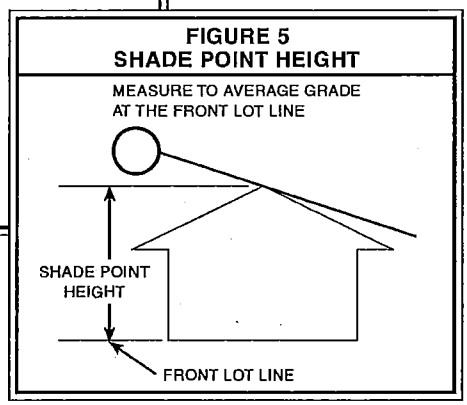
Where: H = the maximum allowed height of the shade point (see Figures 4 and 5);

SRL = shade reduction line (the distance between the shade point and the northern lot line, see Figure 6); and

N = the north-south lot dimension, provided that a north-south lot dimension of more than 90 feet shall use a value of 90 feet for this section.

Adjustment to shade point height on sloped lots: The maximum allowed height of the shade point may be increased one foot above the amount calculated using the formula or Table A for each foot that the average grade at the north property line exceeds the average grade at the south property line.





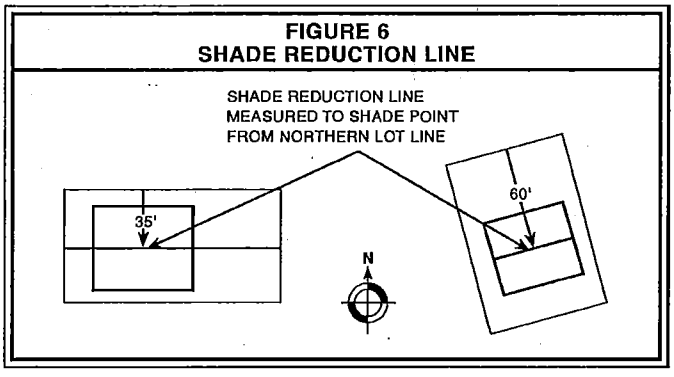


TABLE A
MAXIMUM PERMITTED SHADE POINT HEIGHT (In Feet)

LENGTH OF SHADE REDUCTION LINE	North-South Lot Dimension (in Feet) 90+	85	80	75	70	65	60	55	50	45	40
70	40	41	42	43	44						
65	38	39	40	41	42	43					
60	36	37	38	39	40	41	42				
55	34	35	36	37	38	39	40	41			
50	32	33	34	35	36	37	38	39	40		
45	30	31	32	33	34	35	36	37	38	39	
40	28	29	30	31	32	33	34	35	36	37	38
35	26	27	28	29	30	31	32	33	34	35	36
30	24	25	26	27	28	29	30	31	32	33	34
25	22	23	24	25	26	27	28	29	30	31	32
20	20	21	22	23	24	25	26	27	28	29	30
15	18	19	20	21	22	23	24	25	26	27	28
10	16	17	18	19	20	21	22	23	24	25	26
5	14	15	16	17	18	19	20	21	22	23	24

B. Performance Option: The proposed structure or applicable nonexempt vegetation will shade not more than 20 percent of the south-facing glazing of an existing habitable structure(s), or, where applicable, the proposed structure or nonexempt vegetation will comply with Subsections 1017.04B or 1017.04C of the Solar Access Ordinance for New Development. If Subsection 1017.04B, Protected Solar Building Line, is used, nonexempt trees and the shade point of structures shall be set back from the protected solar building line 2.5 feet for every 1 foot of height of the structure or of the mature height of nonexempt vegetation over 2 feet.

1018.06 EXEMPTIONS FROM THE MAXIMUM SHADE POINT HEIGHT STANDARD

The Planning Director shall exempt a proposed structure or nonexempt vegetation from Subsections 1018.04 and 1018.05 of this ordinance if the applicant shows that one or more of the conditions in this section exist, based on plot plans or plats, corner elevations or other topographical data, shadow patterns, suncharts or photographs, or other substantial evidence submitted by the applicant.

A. Exempt Lot: When created, the lot was subject to the Solar Access Ordinance for New Development and was not subject to the provisions of Subsection 1017.07 of that ordinance.

B. Preexisting Shade: The structure or affected nonexempt vegetation will shade an area that is shaded by one or more of the following:

1. An existing or approved building or structure;

2. A topographic feature;

3. A nonexempt tree that will remain after development of the site. It is assumed a tree will remain after development if it: is situated in a building setback required by local law; is part of a developed area or landscaping required by local law, a public park or landscape strip, or legally reserved open space; is in or separated from the developable remainder of a parcel by an undevelopable area or feature; or is on the applicant's property and not affected by the development. A duly executed covenant also can be used to preserve trees causing such shade.

C. Slope: The site has an average slope that exceeds 20 percent in a direction greater than 45 degrees east or west of true south, based on a topographic survey by a licensed professional land surveyor.

D. Insignificant Benefit: The proposed structure or nonexempt vegetation shades one or more of the following:

1. An undevelopable area; or
2. The wall of an unheated space, such as a typical garage; or
3. Less than 20 square feet of south-facing glazing.

E. Public Improvement: The proposed structure is a publicly owned improvement.

1018.07 ADJUSTMENTS TO THE MAXIMUM SHADE POINT HEIGHT STANDARD

The Planning Director shall increase the maximum permitted height of the shade point determined using Subsection 1018.05 to the extent he/she finds the applicant has shown one or more of the following conditions exists, based on plot plans or plats, corner elevations or other topographical data, shadow patterns, suncharts or photographs, or other substantial evidence submitted by the applicant.

A. Physical Conditions: Physical conditions preclude development of the site in a manner that complies with Subsection 1018.05, due to such things as a lot size less than 3000 square feet, unstable or wet soils, a drainageway, public or private easement, or a right-of-way.

B. Conflict Between Maximum Shade Point Height and Allowed Shade on Solar Feature Standards: A proposed structure may be sited to meet the solar balance point standard described in Subsection 1018.09 or be sited as near to the solar balance point as allowed by Subsection 1018.09 if:

1. When the proposed structure is sited to meet the maximum shade point height standard determined using Subsection 1018.05, its solar feature will potentially be shaded as determined using Subsection 1018.08; and

2. The application includes a form provided by the County that:

   a) Releases the applicant from complying with Subsection 1018.05 and agrees that the proposed structure may shade an area otherwise protected by Subsection 1018.05;

   b) Releases the County from liability for damages resulting from the adjustment; and

   c) Is signed by the owner(s) of the property(ies) that would be shaded by the proposed structure more than allowed by the provisions of Subsection 1018.05.

   Before the County issues a permit for a proposed structure for which an adjustment has been granted pursuant to Subsection 1018.07B, the applicant shall file the form provided for in Subsection 1018.07B2, above, in the office of the County Recorder with the deeds to the affected properties.

1018.08 ANALYSIS OF ALLOWED SHADE ON SOLAR FEATURE

A. The applicant is exempt from Subsection 1018.08 if the lot(s) south of and adjoining the applicant's property is exempt from Subsection 1018.05 of this ordinance.

B. Applicants shall be encouraged to design and site a proposed habitable structure so that the lowest height of the solar feature(s) will not be shaded by buildings or nonexempt trees on the lot(s) to the south. The applicant shall complete the following calculation procedure to determine if the solar feature(s) of the proposed structure will be shaded. To start, the applicant shall choose which of the following sources of shade originating from the adjacent lot(s) to the south to use in calculating the maximum shade height at the north property line:

   1. Existing structure(s) or nonexempt trees; or

   2. The maximum shade that can be cast from future buildings or nonexempt trees, based on Table C. If the lot(s) to the south can be further divided, the north-south dimension shall be assumed to be the minimum lot width required for a new lot in that zone.

C. The height of the lowest point of any solar feature of the proposed structure shall be calculated with respect to either the average elevation or the elevation at the midpoint of the front lot line of the lot to the south.

D. The applicant shall determine the height of the shadow that may be cast upon the applicant's solar feature by the source of shade selected in Subsection 1018.08B by using the following formula or Table B.

SFSH = SH(SGL/2.5)

Where: SFSH = The allowed shadow height on the solar feature (see Figure 8)

SH = The height of the shade at the northern lot line of the lot(s) to the south as determined in Subsection 1018.08B

SGL = The solar gain line (the distance from the solar feature to the northern lot line of the adjacent lot(s) to the south)

TABLE B
MAXIMUM PERMITTED HEIGHT OF SHADOW AT SOLAR FEATURE (In Feet)

Distance from Solar Gain Line to Lot Line (in Feet)	Allowed Shade Height at Northern Lot Line of Adjacent Lot(s) to the South (In Feet)											
	22	21	20	19	18	17	16	15	14	13	12	
50			2	1								
45			4	3	2	1						
40			6	5	4	3	2	1				
35			8	7	6	5	4	3	2	1		
30			10	9	8	7	6	5	4	3	2	
25			12	11	10	9	8	7	6	5	4	3
20			14	13	12	11	10	9	8	7	6	5
15			16	15	14	13	12	11	10	9	8	7
10			18	17	16	15	14	13	12	11	10	9
5			20	19	18	17	16	15	14	13	12	11

Table C may be used to determine (SH) in the above formula.

TABLE C

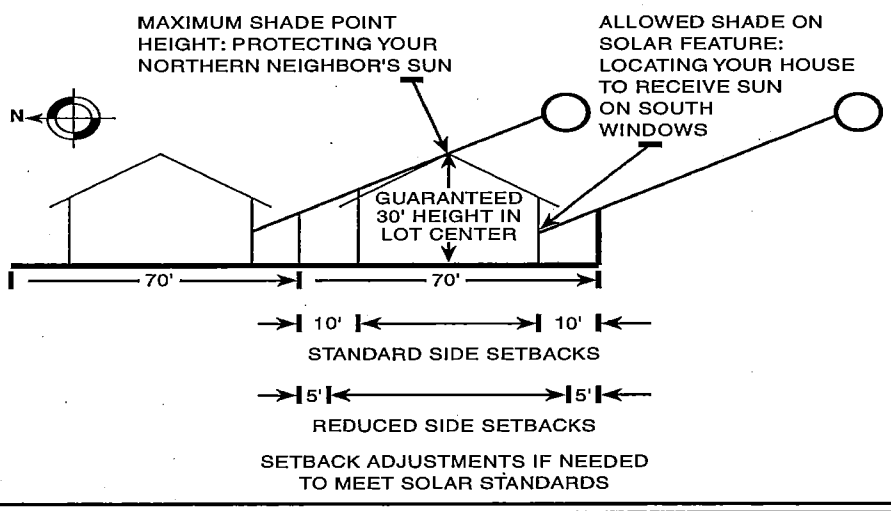
North-South Lot Dimension of Adjacent Lot(s) to the South	100	95	90	85	80	75	70	65	60	55	50	45	40
Allowed Shade Height at the North Property Line of Adjacent Lot(s) to the South	12	12	12	13	14	15	16	17	18	19	20	21	22

E. If the allowed shade height on the solar feature calculated in Subsection 1018.08D is higher than the lowest height of the solar feature calculated in Subsection 1018.08C, the applicant shall be encouraged to consider any changes to the structure design or location which would make it practical to locate the solar feature so that it will not be shaded in the future.

1018.09 SOLAR BALANCE POINT

If a structure does not comply with the maximum shade point height standard in Subsection 1018.05 and the allowed shade on a solar feature standard in Subsection 1018.08, the solar balance point of the lot shall be calculated (see Figure 8). The solar balance point is the point on the lot where the location of a structure would be the same for complying with both of these standards.

FIGURE 8
SOLAR BALANCE POINT STANDARD



1018.10 YARD SETBACK ADJUSTMENT

The County shall grant an adjustment to the side, front and/or rear yard setback requirement(s) by up to 50 percent if necessary to build a proposed structure so it complies with either the shade point height standard in Subsection 1018.05, the allowed shade on a solar feature standard in Subsection 1018.08, or the solar balance point standard in Subsection 1018.09 as provided herein (see Figure 8). This adjustment is not intended to encourage reductions in available solar access or unnecessary modification of setback requirements, and shall apply only if necessary for a structure to comply with the applicable provisions of this ordinance. The following are permitted yard setback adjustments:

A. In R-7 and R-8.5 zones:

1. A front yard setback may be reduced to not less than 10 feet.
2. A rear yard setback may be reduced to not less than 10 feet.
3. A side yard setback may be reduced to not less than 3 feet.

B. In R-10, R-15, and R-20 zones:

1. A front yard setback may be reduced to not less than 15 feet.
2. A rear yard setback may be reduced to not less than 15 feet.
3. A side yard setback may be reduced to not less than 5 feet.

1018.11 REVIEW PROCESS

The provisions of this Section shall be administered by the Planning staff at the time of building permit application. Appeals of staff actions under this section shall be to the Hearings Officer as stated in Section 1305.01K.

1019 SOLAR ACCESS PERMIT ORDINANCE (3/24/05)

1019.01 PURPOSE

This ordinance authorizes the owners of certain properties to apply for a County permit that prohibits shade caused by certain vegetation on neighboring properties from being cast on a solar feature(s) on the property of a permittee.

1019.02 APPLICATION OF SECTION (3/24/05)

An owner of property, including a government, agency, or firm, may apply for and/or be subject to a solar access permit for a solar feature(s) if that property is in a VR-4/5, VR-5/7, R-5, R-7, R-8.5, R-10, R-15, R-20, or R-30 zone, or will be developed with a dwelling. The County's decision whether or not to grant a solar access permit is intended to be ministerial. (3/24/05)

1019.03 DEFINITIONS

Words and terms used in this section shall be defined as provided under Subsection 1017.03.

1019.04 APPROVAL STANDARDS FOR A SOLAR ACCESS PERMIT

The Planning Director shall approve an application for a solar access permit if:

A. The application is complete;

B. The information in the application is accurate; and

C. The applicant shows that nonexempt vegetation on his/her property does not shade the solar feature(s).

1019.05 DUTIES CREATED BY SOLAR ACCESS PERMIT

A. A party to whom the County grants a solar access permit shall:

1. File the permit in the office of the County Recorder with the deeds to the properties affected by it and pay the fees for such filing;

2. Install the solar feature in a timely manner as provided in Subsection 1019.09; and

3. Maintain nonexempt vegetation on the site so it does not shade the solar feature.

B. An owner of property burdened by a solar access permit shall be responsible and pay all costs for keeping nonexempt vegetation from exceeding the solar access height limit.

1019.06 APPLICATION CONTENTS

An application for a solar access permit shall contain the following:

A. Legal Description: A legal description of the applicant's lot and a legal description, owners' names, and owners' addresses for lots all or a portion of which are within 150 feet of the applicant's lot and 54 degrees east and west of true south measured from the east and west corners of the applicant's south lot line. The records of the County shall be used to determine who owns property for purposes of an application. Persons whose names and addresses are not on record at the time an application is filed need not be listed. The failure of a property owner to receive notice shall not invalidate the action if a good faith attempt was made to notify all persons who may have been affected.

B. Site Plan: A scaled plan of the applicant's property showing:

1. Vegetation in the ground as of the date of the application if, when mature, that vegetation could shade the solar feature(s).

2. The approximate height above grade of the solar feature(s), its location, and its orientation relative to true south.

C. Other: A scaled plan of the properties listed in Subsection 1019.06A, above, showing:

1. Their approximate dimensions; and

2. The approximate location of all existing vegetation on each property that could shade the solar feature(s) on the applicant's property.

D. Solar Access Height Limit: For each affected lot, the requested solar access height limit. The solar access height limit is a series of contour lines establishing the maximum permitted height for nonexempt vegetation on lots affected by a Solar Access Permit (see Figure 11). The contour lines begin at the bottom edge of a solar feature for which a permit is requested and rise in five-foot increments at an angle to the south not less than 21.3 degrees from the horizon and extend not more than 54 degrees east and west of true south.

Notwithstanding the preceding, the solar access height limit at the northern lot line of any lot burdened by a solar access permit shall allow nonexempt vegetation on that lot whose height causes no more shade on the benefited property than could be caused by a structure that complies with the Solar Balance Point Ordinance (Section 1018) for existing lots.

FIGURE 11
SOLAR ACCESS HEIGHT LIMIT

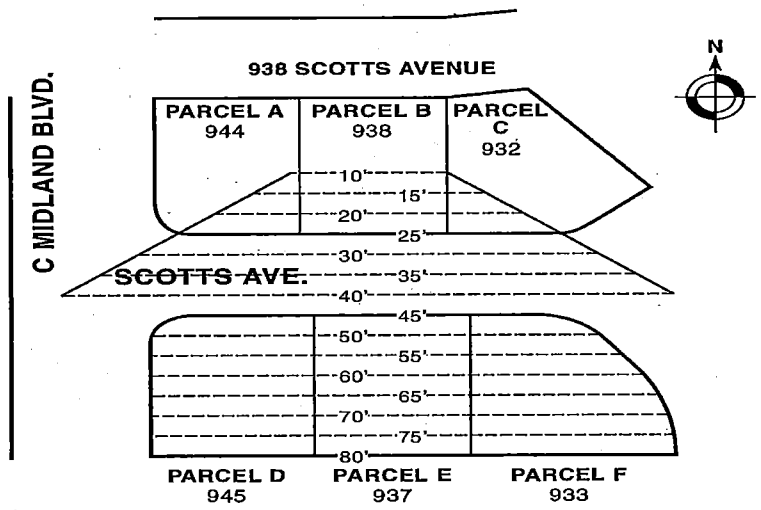
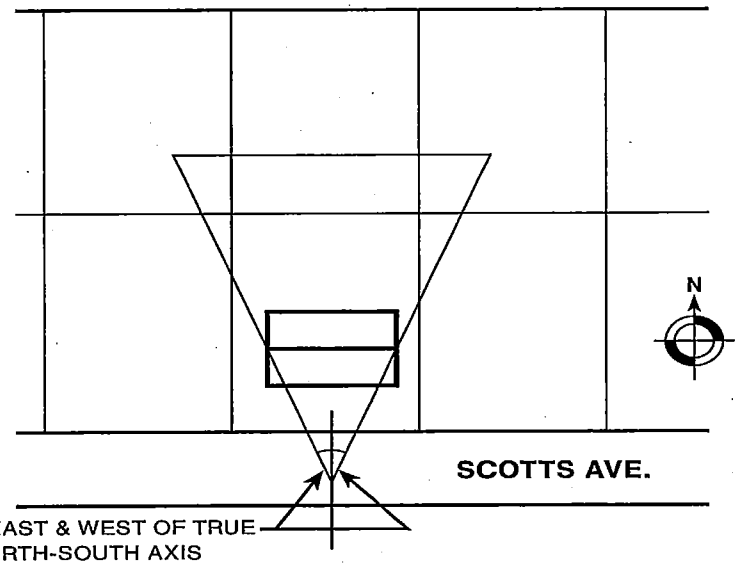


FIGURE 12
SHADOW PATTERN



E. Fee: A fee as required by the Planning Division.

F. Verification Form: If available, a statement signed by the owner(s) of some or all of the property(ies) to which the permit will apply if granted, verifying that the vegetation shown on the plan submitted pursuant to Subsection 1019.05C, above, accurately represents vegetation in the ground on the date of the application. The County shall provide a form for that purpose. The signed statements provided for therein are permitted but not required for a complete application.

1019.07 APPLICATION REVIEW PROCESS

A. Preapplication Conference: Unless waived by the Planning Director, prior to filing an application for a solar access permit, an applicant or applicant's representative shall meet with the Planning Director or designate to discuss the proposal and the requirements for an application. If a meeting is held, the Planning Director or designate shall convey a written summary of the meeting to the applicant by mail within 5 calendar days of the meeting. The applicant may file an application containing the information required in Subsection 1019.06, above, after the preapplication meeting is held or waived.

B. Preliminary Review: Within 7 calendar days after an application is filed, the Planning Director or designate shall determine whether the application is complete and, if it is not complete, notify the applicant in writing, specifying what is required to make it complete.

C. Tentative Decision: Within 14 calendar days after the Planning Director decides an application for a solar access permit is complete, the Planning Director or his/her designate shall issue a written decision tentatively approving or denying the request, together with reasons therefor, based on the standards in Subsection 1019.04.

1. If the tentative decision is to deny the permit, the Planning Director shall mail a copy of the decision to the applicant.

2. If the tentative decision is to approve the permit and the owners of all affected properties did verify the accuracy of the plot plan as permitted under Subsection 1019.06F, the Planning Director shall mail a copy of the decision to the applicant and affected parties.

3. If the tentative decision is to approve the permit and the owners of all affected properties did not verify the accuracy of the plot plan as permitted under Subsection 1019.06F, the Planning Division shall mail a copy of the tentative decision to the applicant and to the owners of affected properties who did not sign the verification statement pursuant to Subsection 1019.06F. The notice shall include the plot plans required in Subsections 1019.06B and C, above, the proposed solar access height limits, and the duties created by the permit. The notice shall request recipients to verify that the plot plan shows all nonexempt vegetation on the recipient's property and to send the Planning Division comments in writing within 14 calendar days after the tentative decision is mailed if the recipient believes the applicant's plot plan is inaccurate.

D. Final Decision: Within 28 days after notice of a tentative decision is mailed to affected parties, the Planning Division shall consider responses received from affected parties and/or conduct an inspection of the site, modify the plot plan and the permit to be consistent with the accurate information, and issue a final decision. The Planning Division shall send a copy of the permit and solar access height limits to the owners of each property affected by the permit.

E. Recording of Solar Access Height Limits: If the application is approved, the applicant shall file the permit and associated solar access height limits in the office of the County Recorder with the deeds to the properties affected by it before the permit is effective.

1019.08 PERMIT ENFORCEMENT PROCESS

A. Enforcement Request: A solar access permittee may request the County to enforce the solar access permit by providing the following information to the Planning Division:

1. A copy of the solar access permit and the plot plans submitted with the permit; and

2. The legal description of the lot(s) on which alleged nonexempt vegetation is situated, the address of the owner(s) of that property, and a scaled site plan of the lot(s) showing the nonexempt vegetation; and

3. Evidence the vegetation violates the solar access permit, such as a sunchart photograph, shadow pattern, and/or photographs.

B. Enforcement Process: If the Planning Director determines the request for enforcement is complete, he or she shall initiate an enforcement action.

1019.09 EXPIRATION AND EXTENSION OF A SOLAR ACCESS PERMIT

A. Expiration: Every permit issued by the Planning Division under the provisions of this ordinance shall expire if the construction of the solar feature(s) protected by such a permit is not commenced within 180 days from the date of such permit, or if the construction of the solar feature(s) protected by such a permit is suspended or abandoned at any time after the work is commenced for period of 180 days. The Planning Director shall terminate the permit by filing the notice of expiration in the office of the County Recorder with the deeds to the affected properties.

B Extension: Any permittee holding an unexpired permit may apply for an extension of the time within which he or she may commence work under that permit when he or she is unable to commence work within the time required by this subsection for good and satisfactory reasons. The Planning Division may extend the time for action by the permittee for a period not exceeding 180 days upon written request by the permittee showing that circumstances beyond the control of the permittee have prevented action from being taken. No permit shall be extended more than once.

Solar Standards

9.2780 **Purpose of Solar Standards.** Solar standards are utilized to create lot divisions, layouts and building configurations to help preserve the availability of solar energy to one and two family dwellings.

(Section 9.2780, see chart at front of Chapter 9 for legislative history from 2/26/01 through 6/1/02.)

9.2790 **Solar Lot Standards.**

(1) **Applicability.** Solar lot standards apply to the creation of lots within subdivisions in R-1 and R-2 zones.

(2) **Solar Lot Requirements.** In R-1 and R-2, at least 70% percent of the lots in a subdivision shall be designed as "solar lots" and shall have a minimum north-south dimension of 75 feet and a front lot line orientation that is within 30 degrees of the true east-west axis. For purposes of this subsection, a lot proposed for more than one dwelling unit shall count as more than one lot , according to the number of units proposed (e.g. a lot proposed for a fourplex shall be considered 4 lots). **(See Figure 9.2790(2) Solar Lot Requirements.)**

(3) **Exceptions to the Solar Lot Requirements.** A proposed subdivision shall be exempt from EC 9.2790(2) if either of the following exists:

(a) Density. The proposed subdivision provides at least 70% of the maximum allowed density according to the zoning of the property.

(b) Site Constraints. One of the following circumstances is present:

1. Compliance with applicable street standards or public street plans requires a street configuration that prevents the lots from being oriented for solar access.
2. An existing public easement or right-of-way prevents the lot from being oriented for solar access.
3. There is a significant natural feature on the site, identified as such in the Metro Plan, adopted refinement plan, or in any city-adopted natural resource inventory that will continue to exist after the site is developed, and that prevents the lot from being oriented for solar access.

(4) **Exemptions to the Solar Lot Requirements.** A proposed lot shall not be identified as a "solar lot" but shall be counted as a lot that satisfies EC 9.2790(2) Solar Lot Requirements when the lot satisfies (a)(b)(c) or (d) of this subsection.

(a) Slopes. The lot is sloped 20 percent or more in a direction greater than 45 degrees east or west of true south.

(b) Existing Off-Site Shade. The lot is within the shadow pattern of off-site features, such as but not limited to buildings, topography, or coniferous trees or broadleaf evergreens, which will remain after development occurs on the site from which the shade is originating.

1. Shade from existing or approved off-site buildings or structures and from topographic features is assumed to remain after development of the site.
2. Shade from vacant developable areas off-site is assumed to be the shadow pattern that would result from the largest building allowed at the closest setback allowed on adjoining land, whether or not that building now exists.

3. Shade from coniferous trees or broadleaf evergreens is assumed to remain after development of the site if that vegetation is situated in a required setback; or part of a developed area, public park, or legally reserved open space; or part of landscaping or other features required pursuant to this land use code.

(c) Existing On-Site Shade. The site, or portion of the site for which the exception is sought complies with at least one of the following:

1. The site is within the shadow pattern of on-site features such as, but not limited to, buildings and topography which will remain after the development occurs.
2. The site contains coniferous trees or broadleaf evergreens at least 30 feet tall and more than 8 inches in diameter measured four feet above the ground which have a crown cover over at least 80 percent of the site or relevant portion. The applicant can show such crown cover exists using a scaled survey or an aerial photograph. If granted, the exemption shall be approved subject to the condition that the applicant preserve at least 50 percent of the non-solar friendly vegetation that cause the shade that warrants the exemption. The applicant shall file a note on the plat or documents in the office of the county recorder binding the applicant to comply with this requirement.

(d) Housing Mix. The lot is designated for a housing type other than one-family detached dwellings in a proposed subdivision that identifies at least 10% of the lots for a housing type other than one-family detached dwellings.

(Section 9.2790, see chart at front of Chapter 9 for legislative history from 2/26/01 through 6/1/02.)

9.2795 Solar Setback Standards.

(1) Applicability. These standards apply to all structures on R-1 and R-2 zoned lots, 4000 square feet or greater, with a minimum north-south dimension of 75 feet.

(2) Solar Setback Requirements. Buildings shall be setback from the northern property line according to the standards in this section. An applicant for a development permit for a building subject to this section shall submit verification on a form approved by the city manager that shows either the solar setback or how the structure qualifies for an exemption. If buildings on separate lots are attached or connected at a common lot line, the solar setback standards apply as if the buildings are a single building on a single lot composed of both lots. **(See Figure 9.2795 Solar Setback Standards, Figure 9.2795(2) Shade Point Height (SPH) Measurement, Figure 9.2795(2)(a) R-1 Solar Setback Calculation, and Figure 9.2795(2)(b) R-2 Solar Setback Calculation.)**

(a) Solar Setback for R-1 Zone. The solar setback of the shade point shall be greater than or equal to the following formula:

SSB = (2.5 X SPH) + (N divided by 2) - 82.5

Where:

SSB = Solar setback (the shortest horizontal distance between the shade point and the plane of the northern lot line).

SPH = Shade point height (Reduce this dimension by 3 feet if the shade point is a ridgeline between 45 degrees east or west of true north.)

N = North-south lot dimension. Maximum allowable "N" for purposes of calculating the solar setback shall be 90 feet.

The following table, which accurately applies the formula, can be used to determine compliance with the solar setback standard.

Table 9.2795(2)(a) Solar Setback From Northern Lot Line for R-1 [SSB] (All figures are in feet.)*

Shade Point Height [SPH]	North-South Lot Dimension			
	90 feet [N]	85 feet [N]	80 feet [N]	75 feet [N]
18 feet	7.5	5	2.5	0
20 feet	12.5	10	7.5	5
22 feet	17.5	15	12.5	10
24 feet	22.5	20	17.5	15
26 feet	27.5	25	22.5	20
28 feet	32.5	30	27.5	25
30 feet	37.5	35	32.5	30
32 feet	42.5	40	37.5	35
34 feet	47.5	45	42.5	40
36 feet	52.5	50	47.5	45
38 feet	57.5	55	52.5	50
40 feet	62.5	60	57.5	55

*Solar setback is usually measured from an eave or from a ridge line of a roof. See Shade Point definition in EC 9.0500 and Figure 9.2795.

(b) Solar Setback for R-2 Zone. The solar setback of the shade point shall be greater than or equal to the following formula:

SSB = (2.5 X SPH) + (N divided by 2) - 95

Where:

SSB = Solar setback (the shortest horizontal distance between the shade point and the plane of the northern lot line).

SPH = Shade point height (Reduce this dimension by 3 feet if the shade point is a ridgeline between 45 degrees east or west of true north.)

N = North-south lot dimension. Maximum allowable "N" for purposes of calculating the solar setback shall be 90 feet.

The following table, which accurately applies the formula, can be used to determine compliance with the solar setback standard.

Table 9.2795(2)(b) Solar Setback From Northern Lot Line for R-2 [SSB] (All figures are in feet.)*				
Shade Point Height [SPH]	North-South Lot Dimension			
	90 feet [N]	85 feet [N]	80 feet [N]	75 feet [N]
22 feet	5	2.5	0	0
24 feet	10	7.5	5	2.5
26 feet	15	12.5	10	7.5
28 feet	20	17.5	15	12.5
30 feet	25	22.5	20	17.5
32 feet	30	27.5	25	22.5
34 feet	35	32.5	30	27.5
36 feet	40	37.5	35	32.5
38 feet	45	42.5	40	37.5
40 feet	50	47.5	45	42.5
42 feet	55	52.5	50	47.5
44 feet	60	57.5	55	52.5
46 feet	65	62.5	60	57.5

*Solar setback is usually measured from an eave or from a ridge line of a roof. See Shade Point definition in EC 9.0500 and Figure 9.2795.

(3) Exemptions to Solar Setback Requirements. A building is exempt from the solar setback standards when any of the following conditions exist:

(a) Slopes. The lot on which the building is located has an average slope of 20 percent or more in a direction greater than 45 degrees east or west of true north.

(b) Existing Shade. The building will shade an area that is already shaded by one or more of the following:

1. An existing or approved building or structure.
2. A topographic feature.
3. Coniferous trees or broadleaf evergreens that will remain after development of the site.

(c) Insignificant Benefit. The building will shade one or more of the following:

1. A non-developable area, such as designated open space, a public utility easement, street or alley.
2. The wall of an unheated space, such as a garage, excluding solar greenhouses and other similar solar structures.
3. The wall of a non-residential structure.
4. No more than 20% of a south wall of an existing habitable dwelling. See Figures 9.2795(2), 9.2795(2)(a) and 9.2795(2)(b).

(d) Neighbor Approval. The owner of the abutting property to the north, for which a certificate of occupancy has been issued by the city, grants an exemption to the solar setback requirement on a form supplied by the city and subject to a fee set by the city manager.

(e) PUD Exemption. The lot is identified as being exempt from solar setback provisions through an approved PUD application where one or more of the following exists:

1. The lot has been identified as being exempt from solar setback standards.
2. The proposed building locations and heights were approved.

(Section 9.2795, see chart at front of Chapter 9 for legislative history from 2/26/01 through 6/1/02; and amended by Ordinance No. 20353, enacted November 28, 2005, effective January 1, 2006.)

Special Area Zones

General

9.3000 **Purpose for Creating Special Area Zones.** The S Special Area zone provides procedures and criteria for recognition of areas of the city that possess distinctive buildings or natural features that have significance for the community and require special consideration or implementation of conservation and development measures that can not be achieved through application of the standard base zones. In some cases, an S Special Area Zone is applied to implement a plan for an area identified for nodal development. Application of S Special zone to a lot containing a specific building, structure, object, site or archeological resource that qualifies as an historic landmark will ensure that permitted uses encourage preservation of historic qualities.

(Section 9.3000, see chart at front of Chapter 9 for legislative history from 2/26/01 through 6/1/02; and amended by Ordinance No. 20266, enacted November 12, 2002, effective December 12, 2002)

9.3010 **Applicability of General Regulations and Standards.** When an area is zoned S Special Area, as indicated on the Eugene Zoning Map, the general development standards set forth in this land use code shall govern, except when they conflict with the special standards applicable specifically in the special area zone. In cases of conflict, the standards specifically applicable in the special area zone shall control.

(Section 9.3010, see chart at front of Chapter 9 for legislative history from 2/26/01 through 6/1/02.)

9.3015 **Process for Establishment or Change of an S Special Area Zone.** Establishment of an S Special Area zone shall be processed as a Type V application as provided for in EC 9.7500 through EC 9.7560 Type V Application Procedures, based on the criteria in EC 9.3020 and the required provisions of EC 9.3030. Application of the S special area zone to specific areas shall be processed concurrently with establishment of the special area zone. Future application of the zone to specific properties shall be processed as a zone change.

(Section 9.3015, see chart at front of Chapter 9 for legislative history from 2/26/01 through 6/1/02.)

9.3020 **Criteria for Establishment of an S Special Area Zone.** Before adopting an ordinance establishing a S Special Area Zone, the city council shall find that the proposal is in compliance with following criteria:

(1) The area to which the S Special Area Zone is being applied meets at least one of the following criteria:

(a) Is identified in the Metro Plan or a refinement plan as appropriate for

CHAPTER 8

Solar Access

SEC. 10-8-1 STATEMENT OF FINDINGS AND PURPOSE.

(a) The Village Board finds that:
  (1) Diminishing supplies of nonrenewable energy resources threaten the physical and economic well being of the residents of this community who presently rely on such resources to maintain their homes, industries, businesses and institutions;
  (2) Solar energy systems hold great promise for the future energy needs of this community because they use a renewable energy resource; because they require less capital, land, water and other resources needed for central-station generation of electricity; and because they do not pollute the community's water and air; and
  (3) The successful use of solar energy systems for such purposes as supplying space heating, water heating or the production of electricity is dependent upon sufficient access to direct sunlight.

(b) This chapter is adopted under authority contained in sec. 66.032, Wis. Stats., for the purpose of protecting the health, safety, and general welfare of the community by:
  (1) Promoting the use of solar energy systems;
  (2) Protecting access to sunlight for solar energy systems; and
  (3) Assuring that potentially conflicting interests of individual property owners are accommodated to the greatest extent possible compatible with the overall goal of this ordinance.

SEC. 10-8-2 DEFINITIONS.

(a) In this Chapter "AGENCY" means the Village of Prairie du Sac Zoning Inspector.
(b) "APPLICANT" means an owner applying for a permit under this chapter.
(c) "APPLICATION" means an application for a permit under this chapter.

(d) "COLLECTOR SURFACE" means any part of a solar collector that absorbs solar energy for use in the collector's energy transformation process. "Collector surface" does not include frames, support and mounting hardware.

(e) "COLLECTOR USE PERIOD" means 9:00 a.m. to 3:00 p.m. standard time daily.

(f) "IMPERMISSIBLE INTERFERENCE" means a blockage of solar energy from a collector surface or a proposed collector surface for which a permit has been granted under this chapter [section] during a collector use period, if such blockage is by any structure or vegetation on property an owner of which was notified under Section 10-8-3(f). 'impermissible interference" does not include:

(1) Blockage by a narrow protrusion, vegetation, or other object which never obstructs more than 5% of the solar energy which would strike a solar collector during the collector use period on any given day;

(2) Blockage by any structure constructed, under construction or for which a building permit has been applied for before the date the last notice is mailed or delivered under Section 10-8-3(f).

(3) Blockage by any vegetation planted before the date the last notice is mailed or delivered under Section 10-8-3 (f).

(4) Blockage by any structure or vegetation which obstructs less solar energy from a solar collector during the collector use period than would be obstructed by a 6 foot high wall located along the northern boundaries of the property to the south of the solar collector.

(g) "OWNER" means at least one owner, as defined under Sec. 66.021(1)(a), Wis. Stats., of a property or the personal representative of at least one owner.

(h) "PERMIT" means a solar access permit issued under this Chapter.

(i) "SOLAR COLLECTOR" means a device, structure or part of a device or structure a substantial purpose of which is to transform solar energy into thermal, mechanical, chemical or electrical energy.

(j) "SOLAR ENERGY" means direct radiant energy received from the sun.

SEC. 10-8-3 PERMIT APPLICATION AND NOTICE.

(a) PERMIT JURISDICTION. Any owner who has installed or intends to install a solar collector may apply to the Village Board for a permit. A permit may affect any land located within the territorial limits of the Village or which is subject to an extraterritorial zoning ordinance unless the extraterritorial land is subject to a zoning ordinance adopted by a county or town.

(b) APPLICATION. An application for a permit under this Chapter may be obtained from the Village Administrator and shall be completed by the applicant.

(c) INFORMAL PRE-APPLICATION MEETING. Prior to the filing of an application, the applicant shall meet with the Plan Commission to discuss the application and the permit process.

(d) APPLICATION FEE. The completed permit application shall be submitted to the Village Administrator with an application fee as stated in the Schedule of Fees.

(e) REVIEW OF APPLICATION. The Plan Commission shall review the application to determine if it is satisfactorily completed. The Plan Commission shall notify the applicant of this

determination within thirty (30) days after the application has been filed and the application fee received. If the Plan Commission determines that the application is satisfactorily completed, the Village shall provide notice forms and receipt forms to the applicant for service and signing under Subsection (f).

(f) SERVICE OF NOTICE. If an applicant is notified that an application has been satisfactorily completed, the applicant shall deliver by certified mail or by hand the notice, supplied by the Village, to the owner of any property which the applicant proposes to be restricted by the permit. The applicant shall submit to the Village Administrator a copy of a signed receipt for every notice- delivered under this subsection.

(g) CONTENT OF NOTICE. The information on the notice form shall include:

(1) The name and address of the applicant, and the address of the land upon which the solar collector is or will be located.

(2) That an application has been filed by the applicant.

(3) That the permit, if granted, may affect the rights of the notified owner to develop his or her property and to plant vegetation.

(4) That any person who received a notice may request a hearing under Section 10-8-4 within thirty (30) days after receipt of the notice.

(5) he procedure for filing a hearing request and telephone number, address and office hours of the agency.

SEC. 10-8-4 HEARING.

Within thirty (30) days after receipt of the notice under Section 10-8-3(f), any person who has received a notice, or anyone acting on that person's behalf, may file a request for a hearing on the granting of a permit or the Village Board may determine that a hearing is necessary even if no such request is filed. If a request is filed or if the Village Board determines that a hearing is necessary, the Village Board shall conduct a hearing on the application within 90 days after the last notice is delivered. At least thirty (30) days prior to the hearing date, the Village Board shall notify the applicant, any person who has requested a hearing under this section, all owners notified under Section 10-8-3(f), and any other person filing a request of the time and place of the hearing. Prior to the hearing, the Plan Commission shall submit an advisory recommendation to the Village Board.

SEC. 10-8-5 GRANT OF PERMIT.

(a) DETERMINATION. The Village Board shall grant a permit if the Board determines that:

(1) The granting of a permit will not unreasonably interfere with the orderly land use and development plans of the Village;

(2) No person has demonstrated that she or he has present plans to build a structure that would create an impermissible interference by showing that she or he has applied for a building permit prior to receipt of a notice under Sec. 10-8-3(f), has expended at least Five Hundred ($500.00) Dollars on planning or designing such a structure, or by submitting any other credible evidence that she or he has made substantial progress toward planning or constructing a structure that would create an impermissible interference; and

(3) The benefits to the applicant and the public will exceed any burdens.

(4) No person has demonstrated that the granting of a permit would cause an undue hardship in using his or her property in a manner consistent with existing zoning regulations and neighboring property uses.

(b) CONDITIONS.

(1) The Village Board may grant a permit subject to any condition or exemption the Village Board deems necessary to minimize the possibility that the future development of nearby property will create an impermissible interference or to minimize any other burden on any person affected by granting the permit. Such conditions or exemptions may include but are not limited to restrictions on the location of the collector and requirements for the compensation of persons affected by the granting of the permit.

(2) As a condition of receiving a permit, the permit holder shall be responsible for the cost of trimming [pre-existing] vegetation on property affected by the permit to prevent an impermissible interference. The permit holder shall give consideration to the desires of the property owner in trimming such vegetation and shall not unnecessarily remove vegetation which does not or will not in a reasonable period of time create an impermissible interference.

SEC. 10-8-6 APPEALS.

Any person aggrieved by a decision under this chapter may appeal the decision by making a written request to the Village Board within ten (10) days of the decision. The decision shall be reviewed by the Zoning Board of Appeals.

SEC. 10-8-7 RECORD OF PERMIT.

If the Village Board grants a permit:

(a) The Village Board shall specify the property restricted by the permit and shall prepare notice of the granting of the permit. The notice shall include the legal description pursuant to sec. 706.05(2)(c), Wis. Stats., for the property upon which the solar collector is or will be located and for any property restricted by the permit, and shall indicate that the property may not be developed and vegetation may not be planted on the property so as to create an impermissible interference with the solar collector which is the subject of the permit unless the permit affecting the property is terminated or unless a waiver agreement affecting the property is recorded under Section 10-8-9.

(b) The applicant shall record with the register of deeds of the county in which the property is located the notice under Subsection (a) for each property specified under Subsection (a) and for the property upon which the solar collector is or will be located.

(c) The Village Board shall note the location of any solar collector which is the subject of a permit on a map showing the location of all solar collectors for which permits have been granted and shall identify on the map all properties which are subject to restrictions resulting from the granting of a permit.

SEC. 10-8-8 RIGHTS OF PERMIT HOLDER.

The holder of a permit granted under this Chapter is entitled to access to sunlight for the solar collector subject to any conditions or exemptions in the permit and may seek damages for any loss caused by an impermissible interference or an injunction to prevent an impermissible interference as provided under sec. 66.032(7), Wis. Stats.

SEC. 10-8-9 WAIVER OF RIGHTS.

A permit holder by written agreement may waive all or part of any right protected by a permit. The permit holder shall record a copy of the agreement with the register of deeds. A copy of the agreement shall also be filed with the Village Board.

SEC. 10-8-10 TERMINATION OF PERMITS.

(a) Any rights protected by a permit under this Chapter shall terminate if the Village Board determines that the solar collector which is the subject of the permit is:
  (1) Permanently removed or is not used for two (2) consecutive years, excluding time spent on repairs or improvements, or
  (2) Not installed and functioning within two (2) years after the date of issuance of the permit.

(b) The Village Board shall give the permit holder written notice and an opportunity for a hearing on a proposed termination under Subsection (a).

(c) If the Village Board terminates a permit, the Village Board shall record a notice of termination with the register of deeds. The Village Board may charge the permit holder for the cost of recording.

(d) The Village Board shall modify the map of solar collectors prepared under Section 10-8-7(c) to reflect the termination of a permit.

SEC. 10-8-11 PRESERVATION OF RIGHTS.

The transfer of title to any property shall not change the rights and duties provided by a permit granted under this Chapter.

San Luis Obispo (California), City of. 2007. *Municipal Code*.
Current through Ordinance 1509, passed September 18, 2007

Title 16. SUBDIVISIONS
Chapter 16.18. GENERAL SUBDIVISION DESIGN STANDARDS

16.18.160 Energy conservation.

All subdivisions shall provide opportunities for passive or natural heating and cooling opportunities to each of the proposed lots, where determined by the reviewing body to be feasible, except for condominium conversion of existing structures where no new structures are added. Such opportunities may include, but are not limited to:

A. Siting of structures or building envelopes to take optimum advantage of passive cooling and heating opportunities.

B. Adjusting building setback lines to promote the optimum spacing of structures to create adequate solar access.

C. Orienting the longest dimension of each lot within thirty degrees of south, unless the subdivider demonstrates that for certain lots:

1. The lots are large enough to allow proper building orientation and maximum feasible control of solar exposure by the lot owner, regardless of lot orientation. Properly oriented building envelopes shall be established for lots smaller than one acre;

2. Buildings will be constructed as part of the subdivision project (as in condominium or planned development) and the buildings themselves will be properly oriented with adequate solar exposure;

3. Topography makes variations from the prescribed orientation desirable to reduce grading or tree removal or to take advantage of a setting which favors early morning or late afternoon exposure, or where topographical conditions make solar energy infeasible;

4. The size of the subdivision in relation to surrounding streets and lots precludes desirable lot orientation. (Ord. 1490 § 3 (part), 2006)

16.18.170 Easements for solar access.

A. In order to provide for the maximum feasible use of solar energy within subdivisions, the city may require establishment of easements for some or all of the lots to protect access to sunlight. Such easements shall be established on each parcel for the benefit of neighboring parcels within the subdivision. Such easements will not be required when:

1. A plan for building construction and landscaping is approved in conjunction with the subdivision approval, and the plan will provide an acceptable level of solar exposure, as provided in the energy element of the general plan; or

2. The size and shape of the parcels together with the yard and height restrictions of the zoning regulations will allow subsequent development of each parcel in a way which will not eliminate acceptable solar exposure for neighboring parcels within the subdivision; or

3. The subdivision is a condominium conversion.

B. Where required, solar access easements shall protect solar exposure during the period from ten a.m. to two p.m. Pacific Standard Time on the winter solstice, unless topographical conditions or other overriding design considerations make protection of some other, equivalent time interval more desirable. They shall be recorded concurrent with recordation of the subdivision map.

1. The burdens and benefits of the solar easement shall be transferable and run with the land to subsequent grantees of the original grantor(s) and grantee(s).

2. The description of the easement shall include:

a. A plan and orthographic view of the easement area in relation to lot lines, together with notations on the maximum height of structures or vegetation which may occupy the easement area;

b. A written description specifying the easement as a plane limiting the height of structures or vegetation, such plane beginning at a line clearly defined in relation to ground elevation and lot line location, and extending upward at a specific angle (altitude) in a specific direction (azimuth);

c. The restrictions placed on vegetation, structures or other objects which would impair or obstruct passage of sunlight through the easement; and

d. Any terms or conditions under which the easement may be revised or terminated.

3. The establishment of solar easements is not intended to result in reducing allowable densities or the percentage of a lot which may be occupied by structures under zoning in force at the time the easement is established. (Ord. 1490 § 3 (part), 2006)

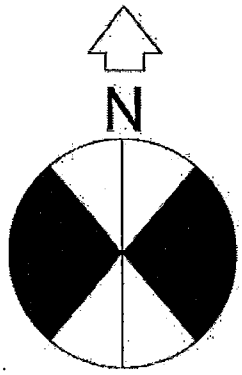
City of Santa Barbara

SOLAR ACCESS PACKET

- ☐ Solar Access Height Limitations
- ☐ S.B. Municipal Code Sections Created or Amended by the Solar Access Ordinance: Ordinance #4426, Adopted 10/7/86
- ☐ Rules and Regulations Pertaining to the Protection and Enhancement of Solar Access in the City of Santa Barbara
- ☐ Solar Access Shadow Plan Preparation Instructions

City of Santa Barbara

SOLAR ACCESS HEIGHT LIMITATIONS



TEMPLATE

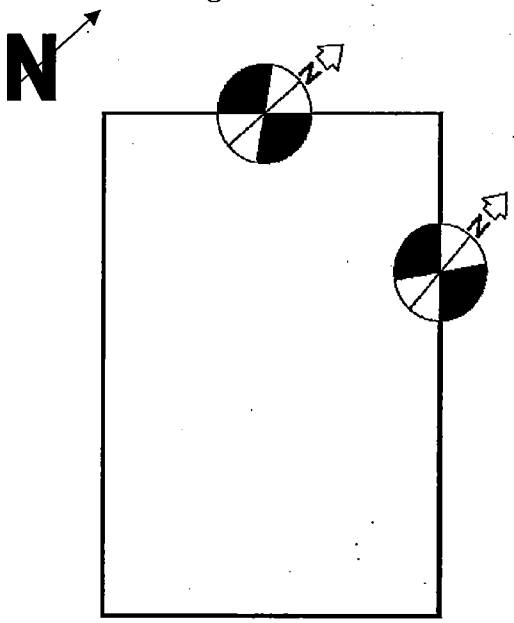
Use the following steps to determine whether your structure complies with the Solar Access Ordinance (SBMC Chapter 28.11). **This ordinance only applies in residential zones.** The purpose of the Solar Access Ordinance is to ensure that your building does not cast a significant shadow on your neighbor's building. This is determined by projecting a shadow that your building would cast on December 21, the day when the sun is lowest in the sky, and your building casts its longest shadow.

The sun shines from the south; therefore your building casts a shadow to the north. If your property is oriented towards one of the cardinal directions (North, South, East, or West), such as in the Outer State Street area, you will usually have one northern neighbor. If your property is located in the downtown area, it is oriented approximately 45 degrees away from the cardinal directions (Northeast, Northwest, Southeast or Southwest), and you may have more than one northerly neighbor. The first step in applying the Solar Access Ordinance to your property is to find all of your northerly property lines.

1. The City defines the northerly lot lines as, "The property line which forms a generally north facing boundary of the lot, and which has a bearing greater than or equal to 40° from either true north or true south." This definition doesn't mean much to most people, so here is an easy way to find your northerly lot lines. First find True North. Then eliminate all lot lines which are obviously not on the northern edges of the property.

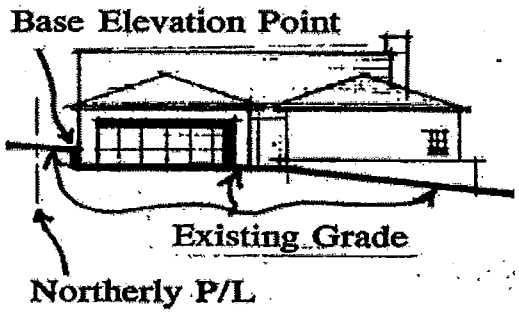
   To determine exactly which of the remaining lot lines are northerly lot lines, use the template which is located on the upper right corner of this page. Place the center of the circle on one of the remaining lot lines. Point the north arrow towards True North. If the lot line in question runs through the black area, it is a northerly property line. In Figure 1, there are two northerly property lines.

Figure 1



2. Establish the "base elevation point" on the east or west elevation plans by finding the highest point of contact between the building and the ground (See Figure 2). On a flat lot, the base elevation point will be the ground. On a sloped lot, the base elevation point will be on the uphill side of the house. The east elevation shows the building as if you were viewing it with your back facing east. The west elevation shows as if your if you were viewing it with your back facing west.

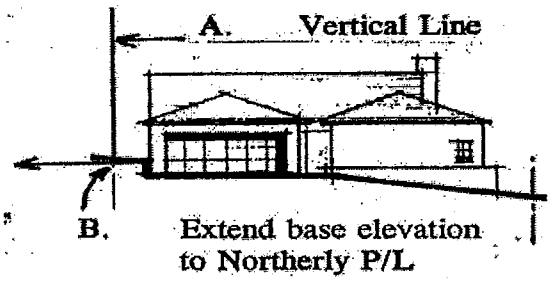
Figure 2



3. Draw the vertical extension of the northerly property line by drawing a vertical line at the northerly property line. See Figure 3, part A.

4. Draw a horizontal line from the base elevation point to the vertical extension of the northerly property line that you drew in Step 3. See Figure 3, part B.

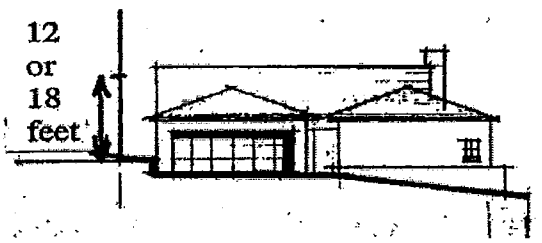
Figure 3



5. On the vertical extension of the northerly property line, mark off a height of either 12 or 18 feet above the base elevation, depending on the zone in which the building is proposed. See the following chart and Figure 4.

Zone	Length of vertical line
A, E, R-1, R-2	12 feet
R-3, R-4	18 feet

Figure 4

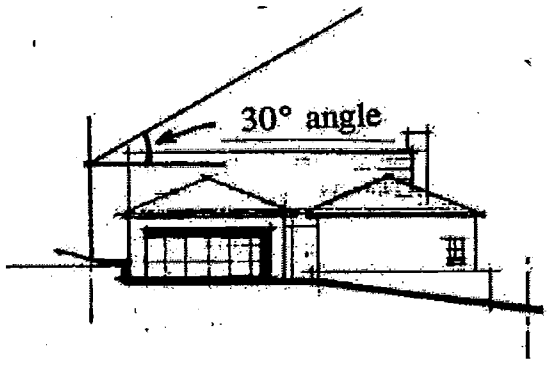


6. From the mark drawn on the vertical extension of the northerly property line in a pervious step, draw a diagonal line towards the proposed building or structure. The diagonal line should be drawn at a 30° angle above horizontal. See Figure 5.

   ☺ If the building is **below** the 30° line, it is **in compliance** with the solar height ordinance.

   ☹ If the building is **above** the 30° line, it is **not in compliance** with the solar height ordinance.

Figure 5



NOTE: *There are exemptions to these requirements for certain architectural features and for certain circumstances. See SBMC Chapter 28.11 for more information.*

City of Santa Barbara

SANTA BARBARA MUNICIPAL CODE SECTIONS CREATED OR AMENDED BY THE SOLAR ACCESS ORDINANCE: ORDINANCE #4426, ADOPTED 10/7/86

Chapter 28.11 PROTECTION AND ENHANCEMENT OF SOLAR ACCESS

28.11.010 Definitions.

For the purposes of this Chapter, the following words and phrases shall have the meaning indicated, unless the context or usage clearly requires a different meaning:

A. BASE ELEVATION. The elevation of the highest point of contact of a structure with the adjacent ground. For the purposes of this determination, all fences, covered and uncovered walkways, driveways, patio covers and other similar elements shall be considered separate structures.

B. NORTHERLY LOT LINE. Any lot line, of which there may be more than one per lot, that forms a generally north facing boundary of a lot and has a bearing greater than or equal to forty degrees from either true north or true south. For curved lot lines, the bearing of the lot line at any point shall be the bearing of the tangent to the curve at that point.

C. PLAN VIEW. A plot plan of the parcel which shows the horizontal dimensions of a parcel and each structure on the parcel.

D. RESIDENTIAL ZONE. An A-1, A-2, E-1, E-2, E-3, R-1, R-2, R-3 or R-4 zone as defined in Title 28 of the Santa Barbara Municipal Code.

E. SHADOW PLAN. A plot plan which shows the extent of shading caused by a proposed structure and is in compliance with the Rules and Regulations approved pursuant to Section 28.11.040 of this Chapter.

F. SOLAR ACCESS. The ability of a location to receive direct sunlight as provided by the height limitations of Section 28.11.020 of this Chapter. (Ord. 4426, 1986.)

28.11.020 Height Limitation.

The maximum elevation of each point on a structure in a residential zone as measured from the base elevation shall not exceed the sum of (i) eighteen (18) feet in an R-3 or R-4 zone or twelve (12) feet in all other residential zones and (ii) fifty-eight percent (58%) of the shortest distance from that point to the nearest northerly lot line as measured horizontally on the plan view of the structure. Any height limitation imposed by this Section shall be in addition to any other height limitation imposed in the Charter or this Code, such that the more restrictive height limitation shall apply. (Ord. 4426, 1986.)

28.11.030 Exemptions.

The following shall be exempt from the height limitations of Section 28.11.020:

A. Any portion of a structure in existence, or for which a valid building permit was issued, prior to the effective date of the ordinance first enacting this Chapter.

B. Any portion of a structure which received Preliminary Approval by the Architectural Board of Review prior to the effective date of the ordinance first enacting this Chapter.

C. Any flagpole, antenna, ornamental spire, chimney, or other building element less than four (4) feet along each horizontal dimension.

D. A utility pole and line.

E. Any portion of a structure for which a shadow plan is prepared and submitted by the applicant demonstrating that shadows cast by that portion of the structure at 9:00 a.m., noon, and 3:00 p.m., Pacific Standard Time on December 21 will:

1. Not exceed the boundaries of a simultaneous shadow cast by a legally existing structure, or by a hill or other topographical feature other than trees or other vegetation; or

2. Not shade that portion of any adjacent residentially zoned lot which is occupied by a dwelling or which could legally and without modification of required yards be occupied in the future by a dwelling; or

3. Fall entirely within the boundaries of an existing covered or uncovered paved off street parking area, or paved driveway leading thereto. (Ord. 4426, 1986.)

28.11.040 Rules and Regulations.

The Community Development Director may promulgate and administer rules and regulations necessary for the administration and interpretation of this Chapter, subject to approval by the City Council. (Ord. 4426, 1986.)

Chapter 28.15 A-1, A-2, E-1, E-2, E-3 and R-1 One-Family Residence Zones

28.15.050 Building Height.

No building in these zones shall exceed a height of thirty feet (30') nor exceed the height limitations imposed for the protection and enhancement of solar access by Chapter 28.11 of this Code. (Ord. 4426, 1986; Ord. 3710, 1974; Ord. 3540, 1972.)

Chapter 28.18 R-2 TWO-FAMILY RESIDENCE ZONE

28.18.050 Building Height.

No building in the R-2 Zone shall exceed a height of thirty feet (30') nor exceed the height limitations imposed for the protection and enhancement of solar access by Chapter 28.11 of this Code. (Ord. 4426, 1986; Ord. 3710, 1974; Ord. 3587, 1973.)

Chapter 28.21 R-3 LIMITED MULTIPLE-FAMILY RESIDENCE ZONE AND R-4 HOTEL-MOTEL-MULTIPLE RESIDENCE ZONE

28.21.050 Building Height.

Three (3) stories, which three (3) stories combined shall not exceed (i) forty-five feet (45') nor (ii) exceed the height limitations imposed for the protection and enhancement of solar access by Chapter 28.11 of this Code. (Ord. 4426, 1986; Ord. 3710, 1974; Ord. 2585, 1957.)

Chapter 28.92 VARIANCES, MODIFICATIONS AND ZONE CHANGES

28.92.026 Modifications.

Modifications may be granted by the Planning Commission or by the Community Development Director as follows:

A. BY THE PLANNING COMMISSION. The Planning Commission, subject to appeal to the City Council, may permit the following:

1. A modification or waiver of the parking or loading requirements where, in the particular instance, the modification will not be inconsistent with the purposes and intent of this Title and will not cause an increase in the demand for parking space or loading space in the immediate area.

2. A modification of yard, lot and floor area regulations where the modification is consistent with the purposes and intent of this Title, and is necessary to (i) secure an appropriate improvement on a lot, (ii) prevent unreasonable hardship, (iii) promote uniformity of improvement, or (iv) the modification is necessary to construct a housing development which is affordable to very low-, low-, moderate- or middle-income households.

3. A modification of fence, screen, wall and hedge regulations where the modification is necessary to secure an appropriate improvement on a lot and is consistent with the purposes and intent of this Title.

4. A modification of height limitations imposed by Section 28.11.020 to protect and enhance solar access where the modification is necessary to prevent an unreasonable restriction. The Rules and Regulations approved pursuant to Section 28.11.040 shall contain criteria for use in making a finding of unreasonable restriction.

5. A modification of building height limitations for existing buildings or structures that exceed the current building height limit, to allow the exterior of the portion of the building or structure that exceeds the building height limit to be improved or upgraded, provided that the improvements increase neither the height nor the floor area of any portion of the building or structure that exceeds the building height limit, except as otherwise allowed in the Code.

B. BY THE COMMUNITY DEVELOPMENT DIRECTOR. Following a public hearing for which notice is given in the manner required by Section 28.92.023 of the Code, the Community Development Director may permit minor modifications in accordance with subsections 1., 2., 3., 4., and 5. above, if said Director finds that:

1. The requested modification is not part of the approval of a tentative subdivision map, conditional use permit, development plan, site plan, plot plan, or any other matter which requires approval of the Planning Commission; and

2. If granted, the modification would not significantly affect persons or property owners other than those entitled to notice.

C. REFERRAL BY COMMUNITY DEVELOPMENT DIRECTOR TO PLANNING COMMISSION. The Community Development Director may, at any time after receipt of an application, determine that the application should be heard by the Commission and shall refer said matter to the Commission for decision. In the event that the Community Development Director determines to refer the application to the Commission and announces the time and place of the Commission meeting at the time set for the public hearing or during the public hearing scheduled before the Community Development Director, a new notice of hearing need not be sent prior to the Commission meeting.

D. APPEAL AND/OR REVIEW OF MODIFICATION DECISION RENDERED BY THE COMMUNITY DEVELOPMENT DIRECTOR.

1. After the Planning Commission is given written notice of the decision by the Community Development Director, or his or her designated appointee (hereinafter "hearing officer"), the Chairperson, Vice Chairperson or other designated member of the Planning Commission, may take action to suspend said decision and schedule a public hearing by the Planning Commission to review said decision and direct the Community Development Director to give notice of said hearing.

2. An appeal by any party shall be filed with the Community Development Director within ten calendar days after the decision by the hearing officer which shall be reported in writing to the Planning Commission within seven days after the decision.

3. In the absence of a timely appeal of the decision made by the hearing officer or a timely action by the Chairperson, Vice Chairperson or other designated member of the Planning Commission to suspend the decision, the decision shall be final.

4. An appeal or review of the decision of the hearing officer shall be conducted by the Planning Commission which shall decide, subject to appeal to the City Council, whether the modification shall be approved, denied or approved with conditions.

5. Any review by the Planning Commission of the decision by the hearing officer shall be consolidated with and considered at the same time as any timely appeal of said decision. (Ord. 5072, 1998; Ord. 4912, 1995; Ord. 4789, 1992; Ord. 4426, 1986; Ord. 4203, 1983; Ord. 4141, 1982; Ord. 4063, 1980; Ord. 3894, 1977; Ord. 3710, 1974.)

City of Santa Barbara

RULES AND REGULATIONS PERTAINING TO THE PROTECTION AND ENHANCEMENT OF SOLAR ACCESS IN THE CITY OF SANTA BARBARA

ADOPTED OCTOBER 7, 1986
AMENDED MARCH 31, 1998

(Attachment to Resolution 98-027)

1. **Authority**

These rules and regulations are promulgated and approved pursuant to Santa Barbara Municipal Code Section 28.11.040.

2. **Policy for Protection and Enhancement of Solar Access**

a. GOALS. It is the goal of the City to promote the use of renewable energy resources, including solar energy. Since the present and future applications of solar energy are well suited to the needs of the residential sector, the City Council adopted Ordinance No. 4426 on October 7, 1986. The intent of the ordinance is to:

i. Establish height limitations for structures constructed hereafter in a residential zone so as to provide a balance between solar rights and development rights. The Municipal Code contains a formula that allows the maximum building height to increase in relation to the distance from a northerly lot line (SBMC §28.11.020).

ii. Allow the Community Development Department to establish rules and regulations regarding administration and interpretation of the Municipal Code Sections related to solar access, subject to City Council approval.

It is not the intent of the ordinance to reduce the allowable number of units on any lot, nor to discourage the development of affordable housing. It is not the intent of the ordinance to establish height limitations on vegetation, because existing state law on this subject is considered adequate for the time being. Neither is it the intent of the ordinance to consider shadows cast by vegetation as a permanent shading source. Therefore, a structure shall not be granted relief from the height limitations on the grounds that its shadow fall within those cast by existing vegetation.

b. POLICY. The Community Development Director shall pursue a policy of:

i. Enforcing the height limitation contained in SBMC §28.11.20; and

ii. Facilitating the granting of appropriate modifications.

3. **Compliance with Height Limitations**

a. HEIGHT LIMITATIONS. The allowable height of any point on a structure in a residential zone is set forth in §28.11.020 of the Santa Barbara Municipal Code. The Community Development Director may, at any time prior to or during construction, require calculations demonstrating compliance with such limitations. The height limitations is related to the distance from a northerly lot line, which is defined so as to include any lot line facing within 40 degrees of north. The intention of this definition is to include both the northwest and northeast lot line on a lot that is oriented 45 degrees away from the cardinal points of

the compass. This is considered necessary so as to provide protection to southeast and southwest facing walls and roof areas.

b. NATURAL GRADE. In determining the base elevation for use in calculating allowable building height, the natural grade shall be used to determine the "highest point of contact of the structure with the adjacent ground."

c. SHADOW DIAGRAMS.

i. In order to obtain an exemption based on SBMC §28.11.030.D, the applicant must submit an acceptable shadow diagram including the following information:

(1) A true north arrow;

(2) Topographical features of the proposed site and any adjacent northerly lots, and existing improvements thereon;

(3) Plan view and exterior elevation view of the proposed structure showing the location of all northerly property lines on both;

(4) Diagrams of the shadows cast at 9:00 a.m., Noon, and 3:00 p.m. Pacific Standard Time on December 21 by the portion of the structure being considered for an exemption.

(5) Any other information deemed necessary by the Community Development Director.

ii. The shadow diagram may be included on the site plan or may be a separate diagram.

iii. The Community Development Director shall provide a sample shadow diagram as a part of the informational materials prepared to implement SBMC Chapter 28.11.

4. **Modification of Solar Access Height Limitations**

a. MUNICIPAL CODE REFERENCE. Santa Barbara Municipal Code §28.92.026.A.4 allows modification of the solar access height limitations to be granted where the modification is necessary to prevent an unreasonable restriction.

b. CRITERIA FOR DETERMINATION OF UNREASONABLE RESTRICTION.

i. MAINTAINING ALLOWABLE NUMBER OF DWELLING UNITS. In the event that the solar access height limitations result in a reduction in the otherwise allowable number of dwelling units in a residential structure or development, including density bonus, such situation may be considered an unreasonable restriction if all of the following criteria apply:

(1) Every feasible effort has been made for the proposed development or structure to comply with the solar access height limitations established by SBMC §28.11.020, and the development or structure is determined to be unable to achieve the otherwise allowable number of dwelling units without violating such height limitations; and

(2) The proposed infringement on solar access is the minimum necessary to permit the allowable number of units on the property.

Applicants desiring a modification on the basis of such criteria shall provide documentation demonstrating that the above criteria are met and demonstrating the

reason that the non-complying portion of the structure or development cannot be relocated or redesigned so as to be in compliance.

ii. AFFORDABLE HOUSING. A development which includes 25% or more dwelling units meeting the affordability criteria of the Community Development Department and which is subject to City monitoring of rent or resale price levels for a minimum of ten years shall receive special consideration in the granting of modifications of the solar access height limitations. If compliance with such limitations will result in significant additional costs for the construction phase of development, this additional cost may be considered an unreasonable restriction.

An applicant desiring modification based on this criterium shall provide adequate documentation showing the extent of the extra costs associated with compliance and demonstrating that the proposed infringement on solar access is the minimum necessary to prevent significant extra construction costs.

iii. CONSIDERATION OF SECOND STORY ADDITIONS. In cases of second story additions to dwellings in residential zones other than R-3, a modification of the solar access height limitations may be granted on the basis of an unreasonable restriction such that the height limitation would be the same as that specified for R-3 and R-4 zones by SBMC Section 28.11.020 providing that all of the following criteria apply:

(1) All portions of the proposed addition which will violate the solar access height limitations for zones other than R-3 and R-4, except for roof overhangs of up to two (2) feet, are entirely within the perimeter of a structure which was constructed or was issued a building permit prior to the effective date of the ordinance first enacting SBMC Chapter 28.11.

(2) The horizontal dimensions of the proposed addition, excluding roof overhangs, as measured parallel to all northerly lot lines of the lot upon which it is proposed, do not exceed twenty five (25) feet, except that portions of the addition that comply with the solar access height limitations for zones other than R-3 and R-4 shall be exempt from the provisions of this sentence.

(3) All portions of the addition which violate the solar access height limitations for zones other than R-3 and R-4 have been designed so as to cast no shadow at 9:00 a.m., Noon, and 3:00 p.m. PST on December 21 on any solar collector in existence, or for which a building permit has been issued. For the purposes of this subsection, a solar collector shall be any device which is designed primarily to collect solar energy and which contains an area of twenty four (24) square feet or more.

(4) The amount of direct sunlight on all south facing windows on any adjacent lot at 9:00 a.m., Noon, and at 3:00 p.m. PST on December 21 following construction of the proposed addition will be greater than or equal to the amount of such sunlight in the event that the maximum addition in compliance with the solar access height limitations were to be constructed. The effect of shade caused by vegetation shall not be a consideration in this determination. For the purposes of this subsection, south facing windows

shall include any window in a dwelling which faces 45 degrees or less from true south and which separates heated from non-heated space.

Applicants desiring a modification of the solar access height limitations based on these criteria shall provide adequate documentation, including but not limited to shadow diagrams as described in Section 3, Paragraph C above, demonstrating that these criteria are met.

iv. TWO AND THREE STORY STRUCTURES IN THE CENTRAL BUSINESS DISTRICT. A modification may be granted to applicants proposing to construct a two (2) or three (3) story structure on property zoned R-3 or R-4 and located in the Central Business District pursuant to SBMC §28.92.26(A.)(4.) provided the following:

(1) The property has less than the required 60 feet of frontage on a public street;

(2) All portions of the structure which exceed the requirements of the solar access height limitations for zones R-3 and R-4 have been designed so as to cast no shadow at 9:00 a.m., Noon, and 3:00 p.m. PST on December 21 on any solar collector in existence, or for which a building permit has been issued. For the purposes of this subsection, a solar collector shall be any device which is designed primarily to collect solar energy and which contains an area of twenty four (24) square feet or more.

(3) The amount of direct sunlight reaching all south facing windows of any structure on an adjacent lot at 9:00 a.m., Noon, and at 3:00 p.m. PST on December 21 following construction of the proposed third story will be greater than or equal to the amount of such sunlight in the event that the maximum development in compliance with the solar access height limitations were to be constructed. The effect of shade caused by vegetation shall not be a consideration in this determination. For the purposes of this subsection, south facing windows shall include any window in a dwelling which faces 45 degrees or less from true south and which separates heated from non-heated space.

Applicants desiring a modification of the solar access height limitations based on these criteria shall provide adequate documentation acceptable to the Community Development director, including but not limited to shadow diagrams as described in Section 3, Paragraph C above, demonstrating that these criteria are met.

For the purposes of this Resolution, the Central Business District (CBD) shall be defined as the area bounded by Garden Street on the northeast, De La Vina Street on the southwest, Arrellaga Street to the northwest and U.S. Highway 101 to the southeast.

5. **Modification of Required Yards to Promote the Use of Solar Energy**

a. MUNICIPAL CODE REFERENCE. Santa Barbara Municipal Code Section 28.92.026.A.2 allows a modification of required yard size where the modification is consistent with the purposes and intent of the Zoning Ordinance (SBMC Title 28) and is necessary to:

i. Secure an appropriate improvement on a lot,

ii. Prevent unreasonable hardship, or

iii. Promote uniformity of improvement.

b. CRITERIA FOR MODIFICATIONS OF REQUIRED YARDS TO PROMOTE THE USE OF SOLAR ENERGY. The construction of a dwelling or a solar energy collection and/or storage device within a required yard may be considered an appropriate improvement on a lot and the basis for a modification of required yards as follows:

i. A modification may be granted for up to a 50% reduction in a required yard dimension for the purpose of locating a dwelling to achieve better solar access, provided that all of the following criteria are met:

(1) The portion of the required yard that is reduced as a result of the modification will be added to the required yard space elsewhere on the lot; and

(2) The proposed structure is designed so as to utilize the solar energy provided by the improved solar access.

Applicants for such modifications shall provide adequate documentation demonstrating that the above criteria are met.

ii. A modification for up to 50% reduction of a required yard dimension may be granted for the purpose of installing a solar energy collection and/or storage device, provided that all of the following criteria are met:

(1) The device is primarily for use in collecting and/or storing solar energy; and

(2) The device or structure will not provide additional habitable floor space.

Applicants for such modifications shall provide adequate documentation demonstrating that the above criteria are met.

iii. In cases where construction is proposed on two adjacent lots at the same time, a zero lot line modification may be granted for the purposes of improving solar access. In such cases, a required interior may be eliminated so as to allow the joining of structures along a common lot line provided that all of the following criteria are met:

(1) Both structures are applied for and approved concurrently;

(2) The opposite required yards on both lots are increased by the amount eliminated such that there will be no increase in the buildable area on either lot; and

(3) The applicant demonstrates the advantages gained for improved solar access.

c. POLICY STATEMENT IN SUPPORT OF SOLAR ENERGY. As a part of the City's support for the use of solar energy, applications for such modifications shall be given special consideration and regarded favorably as long as the modifications would not substantially impair other purposes and intents of the Zoning Ordinance.

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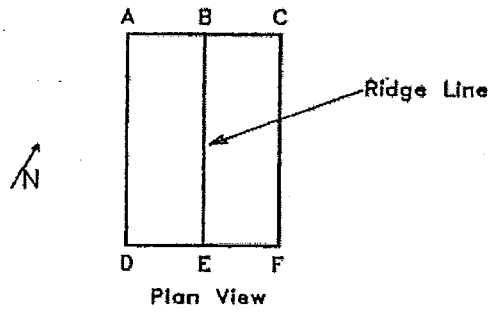
City of Santa Barbara

SOLAR ACCESS
SHADOW DIAGRAM PREPARATION INSTRUCTIONS

If your building does not meet the Solar Access Height limitations (SBMC §28.11.020), use the following procedure to prepare a shadow diagram for the hours of 9:00 a.m., Noon & 3:00 p.m. on December 21 to determine whether your structure qualifies for one of the exemptions contained in Section §28.11.030.E.

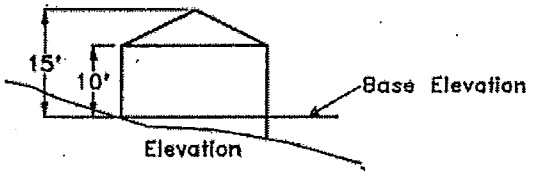
1. On the site plan, locate the prominent shadow casting portions of the proposed structure, such as ridge lines, eaves, and parapets. (Points A, B, C, D, E, and F in Figure 1).

Figure 1



2. Determine the height of each of these points above the adjacent property where shadows will be cast. (For simplicity you may assume that the property shown in Figure 2 is flat and at the same elevation as the "Base Elevation" of your structure as defined in SBMC 28.11.010.)

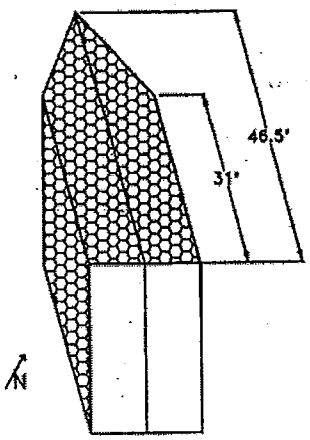
Figure 2



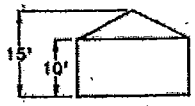
3. Use the following chart to determine the direction and length of shadows for the particular time of day in question.

	TIME OF DAY, DECEMBER 21 (WINTER SOLSTICE)		
	9:00 a.m.	**Noon**	**3:00 p.m.**
Direction of Shadow	Northwest (N 45 W)	North	Northeast (N 45 E)
Length of Shadow	3.1 times height	1.5 times height	3.1 times height

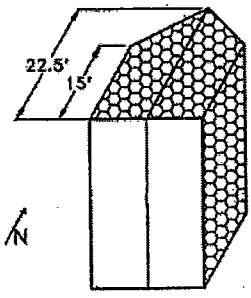
Draw lines accordingly on the site plan. Connect the ends of the shadow lines to create a shadow pattern for the structure. The prominent shadow casting portions of the proposed structure, such as ridge lines, eves and parapets are shown on the diagrams below.



Plan View

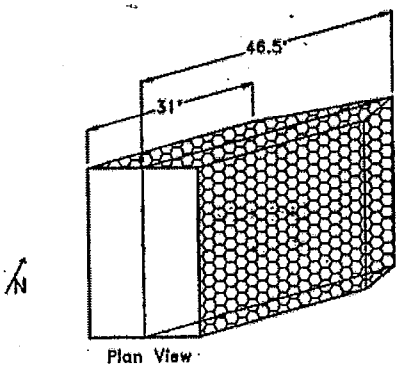


Elevation

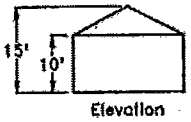


Plan View

Elevation



Plan View



Elevation

\\Comdev2\sys\USERS\PLAN\Handouts\Zoning Cabinet\Solar Access Packet.doc

Revised May 19, 2004

Renewable Energy Incentives

CHELAN COUNTY CODE
Chelan County, Washington
2007

Chapter 12.28
CLUSTER SUBDIVISIONS

12.28.040 Application of zoning regulations.

The use of this chapter supersedes the individual lot size requirements found in the Chelan County zoning regulations. For the purposes of this chapter, the minimum lot size for the zoning district shall be divided into the gross area of the project size to ascertain the maximum number of lots that can be created through the use of this procedure. When these calculations result in fractional numbers or decimal numbers, the decimal result of the number shall be rounded to the next higher number of allowed units. Where this clustering provision is used, a density bonus allows the maximum number of lots to be increased up to one hundred fifty percent, or not to exceed two hundred percent, with incentive features listed in subsection (1) of this section, of that which would otherwise be allowed in the zoning district. All other zoning regulations and use limitations shall remain in full force and effect.

(1) Optional Density Bonus. Up to two hundred percent of the density of the underlying district may be credited if any of the incentive features contained in Table A are included as part of the cluster development design.

(A) Incentive Features. The maximum residential density can be earned only when a combination of incentive features totals a maximum of fifty percent to a maximum density of two hundred percent for the cluster development design. The residential density may in no case exceed two hundred percent of the density in the underlying district.

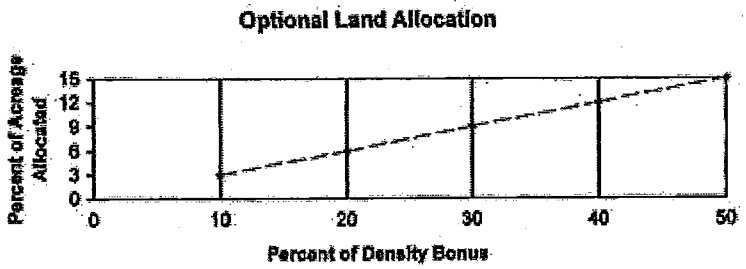
(B) All optional incentive features shall be considered for approval by the Chelan County administrator or hearing examiner.

Table A

Incentive Features	**Maximum Percentage** (Calculated toward 50% density bonus)
a. Open Space Credits	See Table B
b. Road Design/Consolidated/Joint Access	5%
Ungated development allowing through access to the public, interconnected roadway system without cul-de-sacs.	
c. Within Open Space Wildlife and Vegetative Enhancement	10%
(Screening, planting) approved by the Washington State Department of Fish and Wildlife. Corridor connectivity must be included to receive full credit.	
d. Allocation of Land	10%
Through recreation easements to private agencies or dedications to local public agencies, e.g., schools, cities, counties, utility purveyors and/or libraries. (Maximum 15% of acreage = 50% density bonus.)	
e. Within Private Lots: Wildlife Protection Design Measures (Native Landscaping)	5%
As approved by the Washington State Department of Fish and Wildlife.	
f. Pedestrian Trails (No Motorized Vehicles)	5%
g. Visual Screening	5%
Visual screening for non-single-family residential structures; parking shall not be visible from any public road or public vantage point.	
h. Open Space (Greenbelt of Minimum of 20 Feet Wide)	15%
Abuts adjacent open space. The connecting property boundary must be a minimum of 50% of lot depth and designated open space to ensure adequate corridor connectivity.	
i. Contiguous Lots	10%
Development lots contiguous with adjacent cluster developed contiguous lots.	

j. Fire Prevention Measures or Fire Plan Approved by the Fire Marshal	10%
Measures could include extra fire credits, fire sprinklers, accessibility, or vegetation.	
k. Energy and Conservation/Construction	15%
Development uses alternative energy sources and/or uses energy conservative construction design and materials.	
l. Historic Preservation	15%
Archaeological sites and historic buildings.	

Table B
Density Bonus for Allocation of Land to Open Space



(C) This table details an optional density bonus as specified in item (a) in Table A.

(i) Multiply the density bonus desired by 0.3 to calculate acreage allocation percent.

(ii) Density bonus shall not exceed fifty percent.

(iii) Acreage allocated shall not exceed fifteen percent of total acreage. The maximum number of lots shall not exceed the zoning district's maximum density as outlined in the provisions of this section. The remainder of the property shall be held in open space to be preserved and maintained for its scenic value, recreation, conservation, or habitat purposes. (Res. 2007-99 (part), 7/2/07: Res. 2006-43 § 706, 4/4/06: Res. 2003-10, 1/21/03: Res. 2000-128 § 706, 10/17/00).

CHAPTER IA: PLANNED UNIT DEVELOPMENT

SECTION I - PURPOSE

SECTION II - PERMITTED USES

SECTION III - STANDARDS
- Allowable base density
- Affordable Housing
- Open Space
- Off-street parking
- Buffer Yards
- Traffic Impacts
- Public Utilities and Service Impacts
- Dimensional Standards

SECTION IV - DENSITY BONUS PROVISIONS AND STANDARDS

SECTION V - PLANNED UNIT DEVELOPMENT ZONING DESIGNATION
- Pre-application conference
- Application for Zoning Amendment
- General Plan for Planned Unit Development
- Review Procedures for General Plan and Zoning Amendment
- Required findings
- Amendments to General Plan

SECTION VI - PLANNED UNIT DEVELOPMENT SITE PLAN APPROVAL

SECTION VII - WAIVER

SECTION IV - DENSITY BONUS PROVISIONS AND STANDARDS

A. A maximum density bonus of twenty-five (25) percent over the allowable base density for residential and nonresidential uses as set forth in Section III of this chapter may be approved in accordance with the following standards. The density bonuses may be granted, at the discretion of the Town Council, if the proposed density bonuses promote the purposes of the planned unit development zoning district set forth in Section I of this chapter. For residential uses, density bonuses shall be applied to the maximum number of dwelling units. For nonresidential uses, density bonuses shall be applied to gross floor area and maximum impervious surface requirements.

1. Dedicated open space - Increasing the dedicated open space area by a minimum of ten (10) percent of the net acreage of the tract may qualify for a bonus of up to five (5) percent above the allowable base density.

2. Active recreation - Facilities and areas for active recreation exceeding by fifty (50) percent the minimum requirement of Chapter II, Section IV.B.8 may qualify for a bonus of up to five (5) percent above the allowable base density. Active recreation facilities may include, but are not limited to tennis courts, swimming pools, ball fields, picnic or cookout facilities and tot lots.

3. Bike paths/greenway systems - An integrated system of bike paths or pedestrian greenways may qualify for a density bonus of five (5) percent above the allowable base density.

4. Solar access/energy efficiency - Design, layout and construction of a planned unit development providing solar access to forty (40) percent of the dwelling units and ensuring through appropriate deed restrictions that dwelling units will effectively utilize solar energy systems for water and space heating purposes, or design and construction of all structures in a planned unit development in compliance with current Energy Efficiency Building Performance Standards of the Maine Office of Energy Resources pursuant to 10 M.R.S.A. 1411 et seq., may qualify for a bonus of five (5) percent above the allowable base density.

5. Moderate Pricing - Providing a minimum of ten percent (10%) of all dwelling units to be marketed and sold to moderate income household with incomes of less than or equal to 80% of the area median income, adjusted by family size, as established by the Maine State Housing Authority or the Department of Economic and Community Development, which require monthly mortgage payments not exceeding 30% of the household's gross monthly income, may qualify for a bonus of up to ten percent (10%) above the allowable base density.

   Designated moderately priced units shall be identical in external design and construction to the other units in the project and shall be integrated throughout the planned unit development. The developer must enter into a binding agreement with the town to maintain the affordability of these units.

6. Rental units - Providing a minimum of ten percent (10%) of all dwelling units as rental housing for households with incomes of less than or equal to 80% of the area median income, adjusted by family size, as established by the Maine State Housing Authority or the Department of Housing and Urban Development, which have monthly rental payments not exceeding 30% of the households' gross monthly income, may qualify for a bonus of up to ten percent (10%) above the allowable base density. The developer must enter into a binding agreement with the town to maintain the designated units at twenty percent (20%) below market rate for households with incomes of less than or equal to 80% of the area median income.

7. Underground parking - Providing for parking below structures for at least seventy-five percent (75%) of the dwelling units or fifty percent (50%) of the required spaces for non-residential uses may qualify for a bonus of up to ten percent (10%) above the allowable base density.

8. Day Care - Development of a public use day care facility for children may qualify for a bonus of up to five percent (5%) above the allowable base density. The developer must enter into a binding agreement with the town to dedicate the facility for day care and to provide a viable management and operations structure.

9. Public transportation/public transit - Providing public transportation to town residents may qualify for a bonus of up to five percent (5%) above the allowable base density.

Chapter 18.18

RPD RESIDENTIAL PLANNED DEVELOPMENT OVERLAY DISTRICT

Sections:

18.18.010 Purpose of district.

The RPD residential planned development overlay district is intended to permit and encourage flexibility of site planning, with appropriate safeguards and controls for residential development, by allowing variations from the standards specified elsewhere in Division I of this title. Relaxation of lot sizes, yards and density requirements will be permitted when, in the opinion of the planning commission and approval of the city council, the proposed development will enhance the area in which it is proposed, by exceptional design and arrangement of buildings, provision of open space and landscaping, the protection of the welfare and privacy of adjoining property, or the construction and reservation of housing units for lower income or senior households. (Ord. 1009 N.S. § 1 (part), 1991: Ord. 559 N.S. § A (part), 1981)

18.18.095 Minimum lot size.

A. Where variation in development standards is permitted under the provisions of this chapter, exceptions to minimum lot sizes in all RE and R-1 districts shall be permitted up to a maximum of 25 percent below the base district requirements, provided that all provisions of this chapter are satisfied. This exception to minimum lot size shall not apply to duet units on corner lots in the RE and R-1 zones, except as provided below:

1. In the R-1-12,000 district, duet units on corner lots may be on lots that are a minimum of four thousand, two hundred square feet provided that when added to the size of the adjoining duet lot, the two lots in aggregate are at least nine thousand square feet.

2. Variation in minimum lot sizes in the R-2 and R-3 zoning districts shall be established as part of the RPD approval process.

3. Where single-family detached dwellings are located on a common lot, a defined front, side and rear yard space shall be provided for each dwelling equal to no less than 75 percent of the base district requirements, exclusive of any common driveways or shared access easements and exclusive of the common area outside of the defined yard spaces for each dwelling. (Ord. 1473 N.S. § 25, 2000: Ord. 1272 N.S. § 3, 1996; Ord. 1228 N.S. § 19, 1995)

18.18.100 Open space area.

A. Minimum open space area required shall be provided for at the following residential zoning category rates:

1. R-E, R-1 densities, sixty percent;

2. R-2 density, fifty percent;

3. R-3 density, forty percent, unless waived or modified as provided for under Section 18.18.060(B).

B. At least one-half of the total open space requirements shall be devoted to open space usable by the residents, and for such use be suitable in the following particulars: Physical surface characteristics, area dimensions, location, and physical improvements. (Ord. 1009 N.S. § 1 (part), 1991: Ord. 559 N.S. § A (part), 1981)

18.18.110 Density bonus conditions.

A. The planning commission may authorize an increase in allowable dwelling unit density for a residential project design which is exceptionally beneficial to the residents and users of the project and to the neighborhood or for those residential projects that assist in meeting the

lower income or senior housing needs of the community. When a developer has complied with the requirements of Chapter 18.78 or has received the maximum number of evaluation points under the corresponding section of Chapter 18.78 and the planning commission makes the finding that the proposed residential development meets the minimum requirements for building allotments or the amenities exceed the minimum required and are considered of exceptionally high-quality design by the planning commission, the planning commission may, with the approval of precise development plans, award a density increase. The total density bonus shall not exceed twenty-five percent of the density normally allowed inclusive of bonuses for both project design and affordability.

B. The applicant may be awarded maximum density bonuses in each of the following categories:

1. Providing housing units for lower income or senior households as provided in Chapter 18.47, up to a twenty-five percent density bonus;

2. Providing energy conservation measures and installation of alternative energy equipment, i.e., including but not limited to solar-powered heaters, or other innovative technological solutions (corresponding Section 18.78.280), five-percent density bonus;

3. Providing architectural design, site and landscape which:

a. Compliments surrounding architectural development,

b. Pedestrian circulation that ties into surrounding development by extending well-designed pedestrian walkways and pathways as a part of a master planned system,

c. Compliments specific city design plans, (Street beautification, linear park, buffer along incompatible land use, etc.) five-percent density bonus;

4. Providing for the incorporation of transfer of development credits from another site to the development, up to a maximum 25 percent density bonus. (Ord. 1215 N.S. § 22, 1995; Ord. 1009 N.S. § 1 (part), 1991: Ord. 899 N.S. § 2 (part), 1989; Ord. 559 N.S. § A (part), 1981)

18.18.120 Development plan--Contents--Submittal.

A. New residential planned development and residential condominiums shall be subject to Chapter 18.78 of this title. A request for the establishment of a residential planned development district shall be accompanied by the following information, unless the overlay district is initiated by the city, in which case the requirements shall be the responsibility of any subsequent applicant.

B. The development plan shall contain the following information:

1. Scale, North arrow, and title block;

2. Name and address of owner, project engineer and project architect;

3. Vicinity map and legal description;

Chapter 17.107

PLANNED RESIDENTIAL DEVELOPMENT

Sections:

17.107.010 Purposes. The purposes of this Chapter are

(1) to provide the city with an alternative form of residential development which will promote flexibility and creativity in the layout and design of new residential developments and which will protect the environment through the increased use of open space.

(2) to provide an alternative to traditional lot-by-lot development by accomplishing, among other things, the following:

(a) the preservation of natural landscapes, trees, streams, or other valuable community amenities;

(b) the clustering of structures to preserve or create open spaces, especially where steep slopes or other environmentally sensitive areas exist;

(c) the provision of a more efficient street and utility system serving units in a cluster, thus lowering housing, land development, and maintenance costs and reducing the amount of impervious surfaces.

otherwise by this Chapter. (Ord. 87-9 §1, 1987).

17.107.040 Development Standards. In considering a proposed PRD project the City Council may, if allowed in this section, approve a change from regular development regulations. Standards for the development of PRDs are as follows:

(1) PRD Size. The minimum size of a PRD shall be one (1) acre or five (5) lots, whichever is greater.

(2) Residential Density. The number of dwelling units allowed in a PRD shall be determined as follows:

(a) Basic Density. The number of dwelling units shall be calculated by dividing the net developable area by the minimum lot area per dwelling unit required by the zone in which the site is located. Net developable area is determined by subtracting the area set aside for public streets and nonresidential uses such as schools, churches or service or trade uses from the total development area.

(b) PRD Bonus Density. An increase in residential density above the level established in 17.107.040(2)(a) shall be allowed at a rate of a one (1) percent increase in density for each density bonus point if a PRD incorporates the following features:

(i) Energy Conservation. Up to a maximum of five (5) density bonus points shall be awarded to any PRD incorporating any combination of the following energy conservation features:

(aa) Five (5) density bonus points shall be awarded if seventy (70) percent or more of all proposed structures intended for human occupancy have a calculated heating/ cooling energy consumption less than that required by the Washington State Energy Code standards;

(bb) Two and one-half (2-1/2) density bonus points shall be awarded if legally guaranteed solar access is provided to the south-facing surfaces of fifty (50) percent or more of all proposed structures that are intended for human occupancy;

(cc) Two and one-half (2-1/2) density bonus points shall be awarded if fifty (50) percent or more of all proposed structures intended for human occupancy derive fifty (50) percent or more of their space heating/cooling, water heating, or electrical power needs from active, passive, or photovoltaic solar systems; or

(dd) Two and one-half (2-1/2) density bonus points shall be awarded if natural topography, grading, and planting are effectively used to decrease the energy consumption of structures in the PRD and to enhance the seasonal use of private or common open spaces.

(ii) Open Space. Up to a maximum of five (5) density bonus points shall be awarded to any PRD that provides more than the required open space. The amount of the bonus will be determined by the amount of additional open space reserved, with a one (1) percent bonus being awarded for each additional one (1) percent open space reserved.

(iii) Active Recreational Facilities. Up to a maximum of five (5) density bonus points shall be awarded to any PRD that provides for common, active recreational facilities such as a swimming pool, tennis court, or playground. These facilities shall be sized and designed to meet the needs of the PRD residents and their guests. The density bonus points awarded may range

Attachment 5

Select Ordinance Examples or Excerpts

Regulatory Improvement Workplan

Regulatory Improvement Code Amendment Package 5

(RICAP 5)

City of Portland
Bureau of
Planning and Sustainability
Sam Adams, Mayor
Susan Anderson, Director

RICAP 5 Draft Green Code Amendments

May 26, 2009

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City of Portland Bureau of
Planning and Sustainability
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The Bureau of Planning and Sustainability is committed to providing equal access to information and hearings. If you need special accommodation, please call 503-823-7700, the City's TTY at 503-823-6868, or the Oregon Relay Service at 1-800-735-2900.

I. Introduction

This report is part of the Regulatory Improvement Workplan, an ongoing program to improve City building and land use regulations and procedures. Each package of amendments is referred to as a Regulatory Improvement Code Amendment Package (RICAP), followed by a number.

The workplan for RICAP 5 was adopted by the Planning Commission at a public hearing in August 26, 2008. These were combined with technical fixes that are part of each RICAP, as well as issues mandated by Metro and the State. The total number of issues approved for the workplan was 54. One additional item was added at the Planning Commission, related to Nonconforming upgrades. Inaddition, Mayor Adams requested that the solar panel items be expanded to include small urban wind energy systems.

There are several issue "bundles":

Courtyard Housing Bundle
The Planning Bureau's Courtyard Housing Competition resulted in development of designs for family-oriented housing built around courtyards in multi-dwelling zones. Following the competition, the winning designs were analyzed against Zoning regulations. This resulted in a list of changes that would allow these designs to be built.

Green Bundle
BDS, in conjunction with the former Office of Sustainable Development (now part of the Bureau of Planning and Sustainability), assessed the effects of the zoning code on development with green features. This resulted in a list of proposed amendments to the zoning code intended to ease or provide incentives for the development of green buildings. **This document includes the preliminary draft Zoning Code amendments related to this "green bundle".**

Fence Height Bundle
Regulations that limit fence height are based on required setbacks. In a number of commercial and employment zones there are no required setbacks, so no fence height restrictions apply. In residential zones, different limitations on fence height may apply along front lot lines and side lot lines, which can lead to unwanted fence configurations on corner lots. For example, the house may face what the code considers to be the side lot line, rather than the front lot line, so a taller fence is allowed in front of the house, while a shorter fence in required along the side. The fence height issues raised in this package are intended to provide a more consistent approach to fence regulation in the City.

Loading Space Bundle
The code regulates the size, location, and number of loading spaces required in commercial and multi-dwelling development. Adjustments are frequently sought and approved to some of the loading space requirements. The issues raised in this bundle are intended to reduce the number of adjustments by developing better regulations for loading spaces. Better regulations would more accurately reflect the demand for access to loading spaces and the appropriate sizes for delivery vehicles that visit smaller commercial and multi-dwelling residential sites.

II. Green Bundle Draft Amendments

Preliminary draft amendments to the Zoning Code are included in this section of the report. ***This document is a work in progress.*** **A formal "Discussion Draft" of proposed Zoning Code amendments will be published in early June, with a Planning Commission hearing scheduled on August 25th, 2009.** The amendments are on the odd-numbered pages. The facing (even-numbered) pages contain commentary about the proposed amendment. The commentary includes a description of the problem being addressed, the legislative intent of the proposed amendment, and an assessment of the impact of the proposed change. Draft amendments related to the following topics are included:

Solar Panels
Several amendments to remove Zoning Code barriers to the installation of solar panels.

- Clarify how rooftop solar panels and equipment are treated in building height calculations, and create opportunity for installation of panels on buildings that are already built to the maximum height
- Exempt solar panels installed on existing buildings or on already developed sites from Design Review, within reasonable parameters. A narrower exemption would be created in Historic Districts.

Small Urban Wind Energy Systems
Several amendments to remove Zoning Code barriers to the installation of small urban wind energy systems.

- Allow small-scale wind energy systems to exceed Zoning Code height limits, either as stand-alone towers or when incorporated into building architecture.
- Exempt small-scale wind energy systems installed on existing buildings or on already-developed sites from Design Review, within reasonable parameters. A narrower exemption would be created in Historic Districts.

Eco-Roofs
Exempt Eco-Roofs installed on existing buildings or on already-developed sites from Design Review, within reasonable parameters.

Green Power – Zoning Code Use Categories
Clarify the land use categories in the Zoning Code to ensure that neighborhood scale renewable energy production is allowed in residential and commercial zones. Current rules may classify these facilities, in some cases, as "manufacturing and production." Examples certain grid-connected solar systems, district heating systems, and small-scale biogas generators.

Water Harvesting Cisterns
Several amendments to remove Zoning Code barriers to the installation of water harvesting cisterns (rain barrels, etc.).

- Allow water cisterns within Zoning Code setbacks, within reasonable parameters.
- Exempt water cisterns installed on existing buildings or on already developed sites from Design Review, within reasonable parameters. A narrower exemption would be created in Historic Districts.

Bike Parking
Remove Zoning Code exemptions that allow multi-dwelling (apartment and condominium) buildings to avoid installation of long-term bicycle parking for residents. These amendments will require new apartment and condominium complexes to provide covered secure bike parking, making them subject to the same rules that already apply to new commercial and employment buildings.

Larger Eaves
Allow buildings to have larger eaves. Change Zoning Code setback rules to enable eaves that project deeper into the setback. Larger eaves helps protect buildings from weather, and are important in energy conservation.

Specific Items – RICAP 5 "Green Bundle"

Item #	Item Name	Proposed Amendment	Zoning Code Section
1	Rainwater Harvesting Cisterns	Create standards for rainwater harvesting cisterns.	33.110.220; 33.110.250; 33.120.220; 33.120.280; 33.130.215; 33.130.265; 33.140.215; 33.140.270; 33.420.045; 33.445.320
3	Solar Panels & Height	Create exemptions to maximum height limit for solar panels.	33.110.215; 33.120.215; 33.130.210; 33.140.210; 33.510.235
27	Long Term Bike Parking in Multi-Dwelling Development	Strengthen regulations that require bike parking in multi-dwelling development.	33.266.220
32	Solar Panel Design Review Exemption	Exempt solar panels from design review.	33.218.110; 33.218.140; 33.218.150; 33.420.045;
33	Eco-Roof Design Review Exemption	Exempt eco-roofs from design review.	33.218.110; 33.218.140; 33.218.150; 33.420.045
37	Solar Panel Historic Design Review Exemption	Exempt solar panels from some historic and conservation reviews.	33.445.320; 33.445.420
38	Eco-Roof Historic Design Review Exemption	Exempt eco-roofs from some historic and conservations reviews.	33.445.320; 33.445.420
39	Eco-Roof FAR Bonus	Allow FAR bonus credit for eco-roofs and roof gardens when they are located on different parts of the same roof.	33.510.210
48	Solar Panels and Condition Use Review	Allow solar panel installations at conditional use sites without a review.	33.815.040
53	Solar Panel Exemption from Standards	Exempt solar panels from maximum height under certain conditions.	33.110.215; 33.120.215; 33.130.210; 33.140.210
Add #56	Nonconforming Upgrades – Green Technologies Exemption	Exempt some green technologies from threshold for upgrades.	33.258.070
Add #59	Eaves in Setback	Allow eaves to extend farther into setback to protect and shade buildings.	33.110.220; 33.120.220; 33.130.215; 33.140.215
Add #60	Wind Turbine Standards and Exemption to Reviews	Develop standards for siting small wind turbines.	33.110.215; 33.120.215; 33.130.210; 33.140.210; 33.287 (new chapter); 33.420.045; 33.445.320;33.445.420; 33.510.235
Add #61	Green Energy and Use	Clarify that alternative energy producing systems located on buildings are not a primary manufacturing use.	33.110.100; 33.120.100; 33.920.310; 33.920.400; 33.920.340

Item 61 – Green Energy and Use

Item 49 was a request to clarify that solar panels should not trigger Conditional Use Review when installed on a site with a conditional use. As this "use" issue was investigated, at also became clear that the use categories of the Zoning Code could also become a barrier to small scale distributed renewable energy systems. In recent years Portlanders have become increasingly aware of the importance of diversifying our energy sources, reducing dependence on foreign sources of energy, and decreasing the emissions of climate-changing greenhouse gases. This amendment clarifies that certain types of Basic Utilities do not require Conditional Use Review.

33.110.100 Primary Uses

A. Allowed uses. Uses allowed in the single-dwelling zones are listed in Table 110-1 with a "Y". These uses are allowed if they comply with the development standards and other regulations of this Title. Being listed as an allowed use does not mean that a proposed use will be granted an adjustment or other exception to the regulations of this Title. In addition, a use or development listed in the 200s series of chapters is also subject to the regulations of those chapters.

B. Limited uses. Uses allowed that are subject to limitations are listed in Table 110-1 with an "L". These uses are allowed if they comply with the limitations listed below and the development standards and other regulations of this Title. In addition, a use or development listed in the 200s series of chapters is also subject to the regulations of those chapters. The paragraphs listed below contain the limitations and correspond with the footnote numbers from Table 110-1.

1 -4 [no change]

5. Basic Utilities. This regulation applies to all parts of Table 110-1 that have note [5].

a. Basic Utilities that serve a development site are accessory uses to the primary use being served.

b. Energy production systems that generate energy from the environmental conditions of the site or from the byproducts of other site operations will be considered accessory to any other primary use on the site, including both net metered installations and installations that generate power to sell at wholesale to the grid.

c. Systems that produce or distribute energy at a neighborhood or campus scale are allowed without a conditional use. Examples include radiant or steam heat systems that serve an institutional campus or a neighborhood, and systems where energy generated as a byproduct of an allowed use and then distributed to adjacent sites, to an institutional campus, or to the surrounding neighborhood.

d. All other Basic Utilities are conditional uses.

Item 3 – Solar Panels and Height

This amendment provides a new exception to height limits, to accommodate installation of solar panels and small urban wind energy systems on rooftops. Many installations will not need to utilize this exemption, where the roof is not built to the maximum height. This exception would facilitate installations on buildings that are already built to the maximum height limit.

Item 53 – Solar Panels and Height

This item was a request to clarify that rooftop solar panels are not classified as rooftop mechanical equipment, and subject to screening requirements. This is accomplished by adding separate exception for solar and wind systems.

Image courtesy of Oregon Wind Inc.

33.110.215 Height

A-B. [No Change.]

C. Exceptions to the maximum height.

1. Projections allowed. Chimneys, flag poles, satellite receiving dishes, and other similar items with a width, depth, or diameter of 3 feet or less may extend above the height limit, as long as they do not exceed 5 feet above the top of the highest point of the roof. If they are greater than 3 feet in width, depth, or diameter, they are subject to the height limit.

2. Farm buildings. Farm buildings such as silos and barns are exempt from the height limit as long as they are set back from all lot lines, at least one foot for every foot in height.

3. Radio and television antennas, utility power poles, and public safety facilities are exempt from the height limit.

4. Small urban wind energy systems are subject to the standards of Chapter 33.287.

5. Roof mounted solar panels are not included in height calculations, and may exceed the maximum height limit as long as they meet the following:

   a. For flat or mansard roofs, if they do not extend more than 5 feet above the top of the highest point of the roof.

   b. For pitched, hipped, or gambrel roofs, if they are mounted no more than 18 inches from the surface of the roof at any point, and do not extend above the ridgeline of the roof.

D. [No Change.]

Item 59 – Eaves in Setback

33.110.220 Setbacks

C. Extensions into required building setbacks.

The zoning code allows some minor building features to extend into required building setbacks. Building eaves are one of these minor features. The code currently limits the allowed extension to 20 percent of the depth of the setback that is required. For example, if the required setback is 5 feet, the minor building feature would be allowed to extend no more then 1 foot into the setback, whereas if the required setback were 10 feet, the feature could extend 2 feet into the setback.

In a zone with a required setback of 5 feet or less, a building built up to the setback line is essentially limited to an eave that extends no more than one foot into the setback. A precept of green building is that wider eaves are beneficial and should be encouraged. Wider eaves provide several benefits. These include:

- protection of doors and windows from harsh weather, prolonging their useful life;
- protection of foundation and home walls from excess water and moisture damage by redirecting water away from the structure;
- improving energy efficiency by providing shading in the summer heat.

Several nationally recognized standards for green buildings award points in their certification programs for buildings with wider eaves. These include the LEED H, Earth Advantage, and GBI. Generally, these points are granted for eaves that are 24 inches wide or greater in width.

This amendment will allow eaves to extend up to 40 percent of the depth of the setback or three feet, whichever is less, but in no case extend closer than three feet from a lot line. With a setback of 5 feet, this will allow eaves to extend two feet into the setback. If the setback is 10 feet, an eave could extend no more than 3 feet. There is concern that allowing wider eaves in the setback on one property will have a detrimental effect on the light and sense of openness on a neighboring property. The restriction that keeps eaves at least 3 feet from a property line will assure that some light and air is retained on adjacent properties. It is also in keeping with the building code, which has similar restrictions.

Item 1 – Water Collection Cisterns

This amendment responds to a request that rainwater cisterns and other similar building features be allowed within setbacks, within reason. This section of code already governs building features like balconies and fire escapes, and could be expanded to facilitate water collection systems.

33.110.220 Setbacks

A-B. [No Change

C. Extensions into required building setbacks.

1. Minor features of a building such as ~~eaves,~~ chimneys, fire escapes, rain gutters, downspouts, water collection cisterns and planters, bay windows, and uncovered balconies, may extend into a required building setback up to 20 percent of the depth of the setback. However, in no case may they be less than three feet from a lot line. Eaves may extend into a required setback up to 40 percent of the depth of the setback. However, in no case may they extend more than 3 feet into the setback or closer than three feet from a lot line. Bays and bay windows extending into the setback also must meet the following requirements:

   a. Each bay and bay window may be up to 12 feet long, but the total area of all bays and bay windows on a building façade cannot be more than 30 percent of the area of the façade;

   b. At least 30 percent of the area of the bay which faces the property line requiring the setback must be glazing or glass block;

   c. Bays and bay windows must cantilever beyond the foundation of the building; and

   d. The bay may not include any doors.

2. Accessory structures. The setback standards for accessory structures are stated in 33.110.250, below. Fences are addressed in 33.110.255, below. Detached accessory dwelling units are addressed in Chapter 33.205. Signs are addressed in Chapter 33.286.

Item 1 – Water Collection Cisterns

Required setbacks are intended to help preserve a sense of light and air between adjacent properties. Some structures have dimensions that are considered unobtrusive enough that they can be located in a setback without a significant impact on the property next door. This code amendment clarifies that cisterns for storing harvested rainwater are included in these structures if they conform to the required dimensions. This would apply to water cisterns that are not directly attached to (or part of) the primary building.

33.110.250 Accessory Structures

A-B. [No change.]

C. Setbacks.

1. Mechanical equipment. Mechanical equipment includes items such as heat pumps, air conditioners, emergency generators, and water pumps. Mechanical equipment is not allowed in required front, side, or rear building setbacks.

2-3 [no change]

4. Covered accessory structures.

   a. Description. Covered accessory structures are items such as garages, greenhouses, artist's studios, guest houses, accessory dwelling units, storage buildings, wood sheds, water collection cisterns, covered decks, covered porches, and covered recreational structures.

   b. Setback standard. Covered accessory structures if 6 feet or less in height are allowed in side and rear setbacks, but are not allowed in a front setback. Except as allowed in Subparagraph C.4.c, below, covered structures over 6 feet in height are not allowed in required building setbacks. See the exceptions and additional regulations for garages in Section 33.110.253, below.

Item 61 – Green Energy and Use

Item 49 was a request to clarify that solar panels should not trigger Conditional Use Review when installed on a site with a conditional use. As this "use" issue was investigated, at also became clear that the use categories of the Zoning Code could also become a barrier to small scale distributed renewable energy systems. In recent years Portlanders have become increasingly aware of the importance of diversifying our energy sources, reducing dependence on foreign sources of energy, and decreasing the emissions of climate-changing greenhouse gases. This amendment clarifies that certain types of Basic Utilities do not require Conditional Use Review.

33.120.100 Primary Uses

A. Allowed uses. Uses allowed in the multi-dwelling zones are listed in Table 120-1 with a "Y". These uses are allowed if they comply with the development standards and other regulations of this Title. Being listed as an allowed use does not mean that a proposed use will be granted an adjustment or other exception to the regulations of this Title. In addition, a use or development listed in the 200s series of chapters is also subject to the regulations of those chapters.

B. Limited uses. Uses allowed in these zones subject to limitations are listed in Table 120-1 with an "L". These uses are allowed if they comply with the limitations listed below and the development standards and other regulations of this Title. In addition, a use or development listed in the 200s series of chapters is also subject to the regulations of those chapters. The paragraphs listed below contain the limitations and correspond with the footnote numbers from Table 120-1.

1-13 [no change]

14. Basic Utilities. This regulation applies to all parts of Table 120-1 that have note [14].

a. Basic Utilities that serve a development site are accessory uses to the primary use being served.

b. Energy production systems that generate energy from the environmental conditions of the site or from the byproducts of other site operations will be considered accessory to any other primary use on the site, including both net metered installations and installations that generate power to sell at wholesale to the grid.

c. Systems that produce or distribute energy at a neighborhood or campus scale are allowed without a conditional use. Examples include radiant or steam heat systems that serve an institutional campus or a neighborhood, and systems where energy generated as a byproduct of an allowed use and then distributed to adjacent sites, to an institutional campus, or to the surrounding neighborhood.

d. All other Basic Utilities are conditional uses.

Item 3 – Solar Panels and Height

This amendment provides a new exception to height limits, to accommodate installation of solar panels and small urban wind energy systems on rooftops. Many installations will not need to utilize this exemption, where the roof is not built to the maximum height. This exception would facilitate installations on buildings that are already built to the maximum height limit.

Item 53 – Solar Panels and Height

This item was a request to clarify that rooftop solar panels are not classified as rooftop mechanical equipment, and subject to screening requirements. This is accomplished by adding separate exception for solar and wind systems.

33.120.215 Height

A-B. [No Change.]

C. Exceptions to the maximum height.

1. Projections allowed. Chimneys, flag poles, satellite receiving dishes, and other similar items with a width, depth, or diameter of 3 feet or less may extend above the height limit, as long as they do not exceed 5 feet above the top of the highest point of the roof. If they are greater than 3 feet in width, depth, or diameter, they are subject to the height limit.

2. Rooftop access and mechanical equipment. All rooftop mechanical equipment and enclosures of stairwells that provide rooftop access must be set back at least 15 feet from all roof edges that are parallel to street lot lines. Rooftop elevator mechanical equipment may extend up to 16 feet above the height limit. Stairwell enclosures, and other rooftop mechanical equipment which cumulatively covers no more than 10 percent of the roof area may extend 10 feet above the height limit.

3. Radio and television antennas, utility power poles, and public safety facilities are exempt from the height limit.

4. Small urban wind energy systems are subject to the standards of Chapter 33.287.

5. Roof mounted solar panels are not included in height calculations, and may exceed the maximum height limit as long as they meet the following:

   a. For flat or mansard roofs, if they do not extend more than 5 feet above the top of the highest point of the roof.

   b. For pitched, hipped, or gambrel roofs, if they are mounted no more than 18 inches from the surface of the roof at any point, and do not extend above the ridgeline of the roof.

Item 61 – Green Energy and Use

Item 49 was a request to clarify that solar panels should not trigger Conditional Use Review when installed on a site with a conditional use. As this "use" issue was investigated, at also became clear that the use categories of the Zoning Code could also become a barrier to small scale distributed renewable energy systems. In recent years Portlanders have become increasingly aware of the importance of diversifying our energy sources, reducing dependence on foreign sources of energy, and decreasing the emissions of climate-changing greenhouse gases. . No changes to the commercial zone allowances for Basic Utilities because they are already allowed without Conditional Use.

33.130.100 Primary Uses

A. Allowed uses. Uses allowed in the commercial zones are listed in Table 130-1 with a "Y". These uses are allowed if they comply with the development standards and other regulations of this Title. Being listed as an allowed use does not mean that a proposed development will be granted an adjustment or other exception to the regulations of this Title. In addition, a use or development listed in the 200s series of chapters is also subject to the regulations of those chapters.

B. Limited uses. Uses allowed that are subject to limitations are listed in Table 130-1 with an "L". These uses are allowed if they comply with the limitations listed below and the development standards and other regulations of this Title. In addition, a use or development listed in the 200s series of chapters is also subject to the regulations of those chapters. The paragraphs listed below contain the limitations and correspond with the footnote numbers from Table 130-1.

1-9 [no change]

10. Basic Utilities in C zones. This regulation applies to all parts of Table 130-1 that have note [10]. Public safety facilities that include Radio Frequency Transmission Facilities are a conditional use. The approval criteria are in Section 33.815.223. All other Basic Utilities are allowed.

Item 3 – Solar Panels and Height

This amendment provides a new exception to height limits, to accommodate installation of solar panels and small urban wind energy systems on rooftops. Many installations will not need to utilize this exemption, where the roof is not built to the maximum height. This exception would facilitate installations on buildings that are already built to the maximum height limit.

Item 53 – Solar Panels and Height

This item was a request to clarify that rooftop solar panels are not classified as rooftop mechanical equipment, and subject to screening requirements. This is accomplished by adding separate exception for solar and wind systems.

image courtesy of Oregon State University

33.130.210 Height

A. [No Change.]

B. Height standard. The height standards for all structures are stated in Table 130-3. Exceptions to the maximum height standard are stated below.

1. Projections allowed. Chimneys, flag poles, satellite receiving dishes, and other items similar with a width, depth, or diameter of 5 feet or less may rise 10 feet above the height limit, or 5 feet above the highest point of the roof, whichever is greater. If they are greater than 5 feet in width, depth, or diameter, they are subject to the height limit.

2. Roof top access and mechanical equipment. All rooftop mechanical equipment and enclosures of stairwells that provide rooftop access must be set back at least 15 feet from all roof edges that are parallel to street lot lines. Rooftop elevator mechanical equipment may extend up to 16 feet above the height limit. Stairwell enclosures, and other rooftop mechanical equipment which cumulatively covers no more than 10 percent of the roof area may extend 10 feet above the height limit.

3. Radio and television antennas, utility power poles, and public safety facilities are exempt from the height limit.

4. Small urban wind energy systems are subject to the standards of Chapter 33.287.

5. Roof mounted solar panels are not included in height calculations, and may exceed the maximum height limit as long as they meet the following:

   a. For flat or mansard roofs, if they do not extend more than 5 feet above the top of the highest point of the roof.

   b. For pitched, hipped, or gambrel roofs, if they are mounted no more than 18 inches from the surface of the roof at any point, and do not extend above the ridgeline of the roof..

Item 61 – Green Energy and Use

Item 49 was a request to clarify that solar panels should not trigger Conditional Use Review when installed on a site with a conditional use. As this "use" issue was investigated, at also became clear that the use categories of the Zoning Code could also become a barrier to small scale distributed renewable energy systems. In recent years Portlanders have become increasingly aware of the importance of diversifying our energy sources, reducing dependence on foreign sources of energy, and decreasing the emissions of climate-changing greenhouse gases. No changes to the industrial zone allowances for Basic Utilities because they are already allowed without Conditional Use.

33.140.100 Primary Uses

A. Allowed uses. Uses allowed in the employment and industrial zones are listed in Table 140-1 with a "Y". These uses are allowed if they comply with the development standards and other regulations of this Title. Being listed as an allowed use does not mean that a proposed development will be granted an adjustment or other exception to the regulations of this Title. In addition, a use or development listed in the 200s series of chapters is also subject to the regulations of those chapters.

B. Limited uses. Uses allowed that are subject to limitations are listed in Table 140-1 with an "L". These uses are allowed if they comply with the limitations listed below and the development standards and other regulations of this Title. In addition, a use or development listed in the 200s series of chapters is also subject to the regulations of those chapters. The paragraphs listed below contain the limitations and correspond with the footnote numbers from Table 140-1.

1-11 [no change]

12. Basic Utilities in E zones. This regulation applies to all parts of Table 140-1 that have note [12]. Public safety facilities that include Radio Frequency Transmission Facilities are subject to the regulations of Chapter 33.274. All other Basic Utilities are allowed.

13. Basic Utilities in I zones. This regulation applies to all parts of Table 140-1 that have note [13]. Public safety facilities that include Radio Frequency Transmission Facilities are subject to the regulations of Chapter 33.274. Public safety facilities which have more than 3,000 square feet of floor area are a conditional use. The approval criteria are in Section 33.815.223. All other Basic Utilities are allowed.

Item 3 – Solar Panels and Height

This amendment provides a new exception to height limits, to accommodate installation of solar panels and small urban wind energy systems on rooftops. Many installations will not need to utilize this exemption, where the roof is not built to the maximum height. This exception would facilitate installations on buildings that are already built to the maximum height limit.

Item 53 – Solar Panels and Height

This item was a request to clarify that rooftop solar panels are not classified as rooftop mechanical equipment, and subject to screening requirements. This is accomplished by adding separate exception for solar and wind systems.

33.140.210 Height

A. [No Change.]

B. The height standard. The height limits for all structures are stated in Table 140-3. Exceptions to the maximum height standard are stated below.

1. Projections allowed. Chimneys, flag poles, satellite receiving dishes, and other items similar with a width, depth, or diameter of 5 feet or less may rise 10 feet above the height limit, or 5 feet above the highest point of the roof, whichever is greater. If they are greater than 5 feet in width, depth, or diameter, they are subject to the height limit.

2. Rooftop access and mechanical equipment. All rooftop mechanical equipment and enclosures of stairwells that provide rooftop access must be set back at least 15 feet from all roof edges that are parallel to street lot lines. Rooftop elevator mechanical equipment may extend up to 16 feet above the height limit. Stairwell enclosures, and other rooftop mechanical equipment which cumulatively covers no more than 10 percent of the roof area may extend 10 feet above the height limit.

3. Radio and television antennas, utility power poles, and public safety facilities are exempt from the height limit.

4. Small urban wind energy systems are subject to the standards of Chapter 33.287.

5. Roof mounted solar panels are not included in height calculations, and may exceed the maximum height limit as long as they meet the following:

   a. For flat or mansard roofs, if they do not extend more than 5 feet above the top of the highest point of the roof.

   b. For pitched, hipped, or gambrel roofs, if they are mounted no more than 18 inches from the surface of the roof at any point, and do not extend above the ridgeline of the roof.

Item 32 – Solar Panel Design Review Exemption

Item 37 – Solar Panel Historic Design Review Exemption

This amendment clarifies an existing exemption for solar panels in the Community Design Standards. The Community Design Standards offer a clear and objective permit path (without a land use review) for certain kinds of development in the design overlays. Projects in an R3, R2, and R1 zone that qualify to use the Community Design Standards could also incorporate solar panels without being subject to Design Review.

33.218.110 Standards for Primary and Attached Accessory Structures in R3, R2, and R1 Zones
The standards of this section apply to development of new primary and attached accessory structures in the R3, R2, and R1 zones. The addition of an attached accessory structure to a primary structure, where all the uses on the site are residential, is subject to Section 33.218.130, Standards for Exterior Alteration of Residential Structures in Residential Zones.

A-L. [No Change.]

M. Roof-mounted equipment. All roof-mounted equipment, including satellite dishes and other communication equipment, must be screened in one of the following ways. Solar ~~heating~~ panels are exempt from this standard:

1. A parapet as tall as the tallest part of the equipment;

2. A screen around the equipment that is as tall as the tallest part of the equipment;

3. The equipment is set back from the street-facing perimeters of the building 4 feet for each foot of height of the equipment; or

4. If the equipment is a satellite dish or other communication equipment, it is added to the façade of a penthouse that contains mechanical equipment, is no higher than the top of the penthouse, is flush mounted, and is painted to match the façade of the penthouse.

N-P. [No Change.]

Item 32 – Solar Panel Design Review Exemption

Item 37 – Solar Panel Historic Design Review Exemption

This amendment clarifies an existing exemption for solar panels in the Community Design Standards. The Community Design Standards offer a clear and objective permit path (without a land use review) for certain kinds of development in the design overlays. Projects in an RH, RX, C and E zone that qualify to use the Community Design Standards could also incorporate solar panels without being subject to Design Review.

33.218.140 Standards for All Structures in the RH, RX, C and E Zones
The standards of this section apply to development of all structures in RH, RX, C, and E zones. These standards also apply to exterior alterations in these zones.

For proposals where all uses on the site are residential, the standards for the R3, R2, and R1 zones may be met instead of the standards of this section. Where new structures are proposed, the standards of Section 33.218.110, Standards for R3, R2, and R1 Zones, may be met instead of the standards of this section. Where exterior alterations are proposed, the standards of Section 33.218.130, Standards for Exterior Alteration of Residential Structures in Residential Zones, may be met instead of the standards of this section.

A-E. [No Change.]

J. Roof-mounted equipment. All roof-mounted equipment, including satellite dishes and other communication equipment, must be screened in one of the following ways. Solar ~~heating~~ panels are exempt from this standard:

1. A parapet as tall as the tallest part of the equipment;

2. A screen around the equipment that is as tall as the tallest part of the equipment;

3. The equipment is set back from the street-facing perimeters of the building 4 feet for each foot of height of the equipment; or

4. If the equipment is a satellite dish or other communication equipment, it is added to the façade of a penthouse that contains mechanical equipment, is no higher than the top of the penthouse, is flush mounted, and is painted to match the façade of the penthouse.

K-O. [No Change.]

Item 32 – Solar Panel Design Review Exemption

Item 37 – Solar Panel Historic Design Review Exemption

This amendment clarifies an existing exemption for solar panels in the Community Design Standards. The Community Design Standards offer a clear and objective permit path (without a land use review) for certain kinds of development in the design overlays. Projects in an I zone that qualify to use the Community Design Standards could also incorporate solar panels without being subject to Design Review.

33.218.150 Standards for I Zones
The standards of this section apply to development of all structures in the I zones. These standards also apply to exterior alterations in these zones.

A-G. [No Change.]

H. Roof-mounted equipment. All roof-mounted equipment, including satellite dishes and other communication equipment, must be screened in one of the following ways. Solar ~~heating~~ panels are exempt from this standard:

1. A parapet as tall as the tallest part of the equipment;

2. A screen around the equipment that is as tall as the tallest part of the equipment;

3. The equipment is set back from the street-facing perimeters of the building 4 feet for each foot of height of the equipment; or

4. If the equipment is a satellite dish or other communication equipment, it is added to the façade of a penthouse that contains mechanical equipment, is no higher than the top of the penthouse, is flush mount ed, and is painted to match the façade of the penthouse.

I-K. [No Change.]

CHAPTER 33.258
NONCONFORMING SITUATIONS

Item 56 – Nonconforming Upgrades, Green Technologies Exemption

Upgrades to bring development into conformance with the city code are required when improvements exceeding a certain threshold of value are made to a property. This threshold is currently about $130,000. This threshold is increased annually. This amendment would add energy efficiency or renewable energy improvements to a list of improvements that are not included in the project improvement value. The amendment refers to the "Public Purpose Administrator", which is currently the Energy Trust of Oregon.

33.258.070 Nonconforming Development

A-C. [No Change.]

D. Development that must be brought into conformance. The regulations of this subsection are divided into two types of situations, depending upon whether the use is also nonconforming or not. These regulations apply except where superseded by more specific regulations in the code.

1. [No Change.]

2. Nonconforming development with an existing nonconforming use, allowed use, limited use, or conditional use. Nonconforming development associated with an existing nonconforming use, an allowed use, a limited use, or a conditional use, must meet the requirements stated below. When alterations are made that are over the threshold of Subparagraph D.2.a., below, the site must be brought into conformance with the development standards listed in Subparagraph D.2.b. The value of the alterations is based on the entire project, not individual building permits.

   a. Thresholds triggering compliance. The standards of Subparagraph D.2.b., below, must be met when the value of the proposed alterations on the site, as determined by BDS, is more than $124,100. The following alterations and improvements do not count toward the threshold:

      (1) Alterations required by approved fire/life safety agreements;

      (2) Alterations related to the removal of existing architectural barriers, as required by the Americans with Disabilities Act, or as specified in Section 1113 of the Oregon Structural Specialty Code;

      (3) Alterations required by Chapter 24.85, Interim Seismic Design Requirements for Existing Buildings;

      (4) Improvements to on-site stormwater management facilities in conformance with Chapter 17.38, Drainage and Water Quality, and the Stormwater Management Manual; and

      (5) Improvements made to sites in order to comply with Chapter 21.35, Wellfield Protection Program, requirements.

      (6) <u>Energy efficiency or renewable energy improvements that meet the Public Purpose Administrator incentive criteria (the Energy Trust).</u>

   b-c. [No Change.]

Item 56 – Nonconforming Upgrades, Green Technologies Exemption

An additional amendment (Option 3) is suggested to allow energy efficiency or renewable energy improvements to occur as a substitute for nonconforming upgrades. This would allow a property owner to defer nonconforming upgrades if they are instead spending the equivalent money on energy efficiency or renewable energy improvements. This suggested policy shift responds to changes in federal policy that will make more funds available for energy-related improvements in the coming years. This policy recognizes the importance of rapidly diversifying our energy sources, reducing dependence on foreign sources of energy, and decreasing the emissions of climate-changing greenhouse gases. That objective may be as important as the other policy goals behind non-conforming upgrades, at least in the short term. The proposal sunsets in 2012.

d. Timing and cost of required improvements. The applicant may choose one of the following options for making the required improvements:

(1) Option 1. Under Option 1, required improvements must be made as part of the alteration that triggers the required improvements. However, the cost of required improvements is limited to 10 percent of the value of the proposed alterations. It is the responsibility of the applicant to document the value of the required improvements. When all required improvements are not being made, the applicant may choose which of the improvements listed in Subparagraph D.2.b to make. If improvements to nonconforming development are also required by regulations in a plan district or overlay zone, those improvements must be made before those listed in Subparagraph D.2.b.

(2) Option 2. [additional amendment in RICAP 5 pending, not related to green bundle]

(3) Option 3, Energy Investment Substitution. This option may be used in conjunction with Option 1. Under Option 3, energy efficiency or renewable energy improvements may substitute for required nonconforming development upgrades, if such improvements are made to the site as part of the alteration that triggers the required improvements. To qualify, energy efficiency or renewable energy improvements must meet the Public Purpose Administrator incentive criteria. Each dollar of qualifying energy efficiency or renewable energy improvement may substitute for a dollar of required nonconforming development upgrades. A substitution under this section has the effect of reducing the 10 percent cost limit in Option 1, and postponing that amount of nonconforming development upgrades until the next alteration that triggers upgrades. This substitution does not adjust or modify the development standard in question, or otherwise exempt the site from future upgrades. This option sunsets on June 30, 2012.

E-G. [No Change.]

Item 1 – Rainwater Harvesting Cisterns

Item 37 – Solar Panel Historic Design Review Exemption

Item 38 – Eco-roof Historic Design Review Exemption

This amendment creates several new Historic Design Review exemptions, for water cisterns, solar panels, and eco-roofs. This would allow these improvements to be added to existing buildings without triggering Historic Design Review. The exemption is focused on situations when nothing else is being done to the building. If these improvements are proposed as part of a larger change to the site or building, where design review is already required, then these improvements would still be evaluated as part of that Historic Design Review. These exemptions are more conservative than the exemption proposed for Design Review, recognizing the special role that Historic Districts play in preserving the City's heritage.

33.445.320 Development and Alterations in a Historic District

Building a new structure or altering an existing structure in a Historic District requires historic design review. Historic design review ensures the resource's historic value is considered prior to or during the development process.

A. [No Change.]

B. Exempt from historic design review.

1-7. [No Change.]

8. Solar panels installed on existing buildings or on developed sites where no other development is proposed other than required interior structural reinforcement, and meet one of the following mounting standards:

a. On a flat or mansard roof. Mounted flush or on racks and do not extend more than 5 feet above the top of the highest point of the roof and are screened from the street by:
(1) an existing parapet along the street-facing façade that is as tall as the tallest part of the solar panel, or
(2) setting the solar panel back from the roof edges facing the street 4 feet for each foot of solar panel height.

b. On a pitched roof. Mounted flush where:
(1) the plane of the solar panels are parallel with the roof surface,
(2) where the roof surface does not face a street lot line,
(3) where the panels are no more than 18 inches from the surface of the roof at any point, and
(4) where the panels do not extend above the ridgeline of the roof.

c. Ground or pole mounted in an area that is not located between a building and a street.

9. Small urban wind energy systems rated 10 kW or less that are ground mounted or installed on existing buildings, not visible from the street, and where no other development is proposed other than required interior structural reinforcement. See Chapter 33.287.

10. Eco-roofs installed on existing buildings where no other development is proposed other than required interior structural reinforcement.

11. Water Collection Cisterns installed on existing buildings or on developed sites where they are screened from the street, and where no other development is proposed other than interior structural reinforcement.

Item 1 – Rainwater Harvesting Cisterns

Item 37 – Solar Panel Historic Design Review Exemption

Item 38 – Eco-roof Historic Design Review Exemption

This amendment creates several new Historic Design Review exemptions, for water cisterns, solar panels, and eco-roofs. This would allow these improvements to be added to existing buildings without triggering Historic Design Review. The exemption is focused on situations when nothing else is being done to the building. If these improvements are proposed as part of a larger change to the site or building, where design review is already required, then these improvements would still be evaluated as part of that Historic Design Review. These exemptions are more conservative than the exemption proposed for Design Review, recognizing the special role that Conservation Districts play in preserving the City's heritage.

33.445.420 Development and Alterations in a Conservation District
Building a new structure or altering an existing structure in a Conservation District requires historic design review. Historic design review ensures the resource's historic value is considered prior to or during the development process.

A. [No Change.]

B. Exempt from historic design review.

1-7. [No Change.]

8. Solar panels installed on existing buildings or on developed sites where no other development is proposed other than required interior structural reinforcement, and meet one of the following mounting standards:

a. On a flat or mansard roof. Mounted flush or on racks and do not extend more than 5 feet above the top of the highest point of the roof and are screened from the street by:
(1) a parapet along the street-facing façade that is as tall as the tallest part of the solar panel, or
(2) setting the solar panel back from the roof edges facing the street 4 feet for each foot of solar panel height.

b. On a pitched roof. Mounted flush where:
(1) the plane of the solar panels are parallel with the roof surface,
(2) where the roof surface does not face a street lot line,
(3) where the panels are no more than 18 inches from the surface of the roof at any point, and
(4) where the panels do not extend above the ridgeline of the roof; or

c. Ground or pole mounted in an area that is not located between a building and a street.

9. Small urban wind energy systems rated 10 kW or less that are ground mounted or installed on existing buildings, not visible from the street, and where no other development is proposed other than required interior structural reinforcement. See Chapter 33.287.

10. Eco-roofs installed on existing buildings where no other development is proposed other than required interior structural reinforcement.

11. Rainwater Harvesting Cisterns installed on existing buildings or on developed sites where they are screened from the street, and where no other development is proposed other than interior structural reinforcement.

Item 53 - Solar Panels Mechanical Equipment Definition

CHAPTER 33.515
COLUMBIA SOUTH SHORE PLAN DISTRICT

33.515.235 Rooftops

C. Rooftop mechanical equipment.

Standards in the Columbia South Shore Plan District require that rooftop mechanical equipment be screened or painted to match the color of the rooftop. Solar panels and wind turbines differ from other rooftop installations in that their purpose is to generate energy. Solar panels need access to the sun to generate energy. Screening or painting the panels would block access. Wind turbines need access to the wind. Screening would block this access. Because wind turbines have large exterior moving parts, painting them is not practical.

33.515.235 Rooftops

A. Purpose. Rooftops in the plan district are highly visible from Marine Drive, view corridors, and Airport Way. Rooftop standards are intended to reduce the visual impact of rooftop surfaces and rooftop mechanical equipment from those vantage points.

B. Where the regulations apply. The rooftop standards apply to all parts of South Shore except for the Southern Industrial subdistrict.

C. Rooftop mechanical equipment. These standards apply to rooftop mechanical equipment. They do not apply to roof mounted solar panels and wind turbines.

1. Latticework screen wall. Within 200 feet of Marine Drive, Airport Way, or a view corridor vantage point, all rooftop mechanical equipment must be screened from view or not visible from those vantage points. Screen materials will consist of a full screen wall or latticework screen wall. The screen wall need not extend more than one foot above rooftop equipment. The latticework screen may be constructed of a variety of permanent materials, but must be 50 percent sight-obscuring and painted to match the roof or closest wall, whichever is the predominant visible surface from those vantage points.

2. Painting to match rooftop. Each rooftop mechanical equipment unit that interrupts less than 25 square feet of roof surface area may be painted instead of screened, as provided in Paragraph C.1. The paint color must match the rooftop color or closest wall, whichever is the predominant visible surface from Marine Drive, Airport Way, or a view corridor vantage point.

Item 48 – Solar Panels and Conditional Use

33.815.040 Review Procedures

B. Proposals that alter the development of an existing conditional use.

When located on sites where there is a conditional use, such as schools in residential zones, ground mounted solar panels are subject to conditional use review. The approval criteria, however, are designed to evaluate and mitigate for the impacts of the school on the residential area. Solar panels have few impacts on adjacent properties and hardly any impact on public services. The impacts solar panels do have are primarily visual. Other standards in the code that require larger setbacks and landscaping for institutions will continue to help alleviate these visual impacts.

A secondary technical amendment addresses situations where parking is removed in order to complete stormwater upgrades in a parking lot. Removal of one space is often necessary in order to incorporate vegetated swales that meet current standards.

33.815.040 Review Procedures

A. [No Change.]

B. Proposals that alter the development of an existing conditional use. Alterations to the development on a site with an existing conditional use may be allowed, require an adjustment, modification, or require a conditional use review, as follows:

1. Conditional use review not required. A conditional use review is not required for alterations to the site that comply with Subparagraphs a through g. All other alterations are subject to Paragraph 2, below. Alterations to development are allowed by right provided the proposal:

   a. Complies with all conditions of approval;

   b. Meets one of the following:

      (1) Complies with the development standards of this Title, or

      (2) Does not comply with the development standards of this Title, but an adjustment or modification to the development standards has been approved through a land use review;

   c. Does not increase the floor area by more than 1,500 square feet;

   d. Does not increase the exterior improvement area by more than 1,500 square feet. Fences, handicap access ramps, ~~and~~ on-site pedestrian circulation systems, and ground mounted solar panels are exempt from this limitation;

   e. Will not result in a net gain or loss of site area;

   f. Will not result in a net gain in the number of parking spaces; and

   g. Will not result in a net loss in the number of parking spaces. However, one parking space may be eliminated in conjunction with installation of vegetated stormwater management facilities. In addition, sites with 16 or more spaces may decrease the number of spaces as follows:

      (1) No reduction in shared parking spaces is allowed;

      (2) 1 space or 4 percent of the total number of parking spaces may be removed, whichever is greater; and

      (3) An individual or cumulative removal of parking spaces in excess of 5 spaces is prohibited. The cumulative loss of parking is measured from the time the use became a conditional use, July 16, 2004, or the last conditional use review of the use, whichever is most recent, to the present.

2. [No Change.]

Item 61 – Green Energy and Use

The following amendments modify several of the land use categories in the Zoning Code to ensure that neighborhood scale renewable energy production is allowed in residential and commercial zones. Current rules may classify these facilities, in some cases, as "manufacturing and production", or "waste-related". Examples certain grid-connected solar systems, district heating systems, and small-scale biogas generators.

Item 49 was originally a request to clarify that solar panels should not trigger Conditional Use Review when installed on a site with a conditional use. As this "use" issue was investigated, at also became clear that the use categories of the Zoning Code could also become a barrier to small scale distributed renewable energy systems. In recent years Portlanders have become increasingly aware of the importance of diversifying our energy sources, reducing dependence on foreign sources of energy, and decreasing the emissions of climate-changing greenhouse gases.

Alternative energy producing systems like solar panels and small wind turbines are considered accessory equipment if the energy they produce is used on the same site on which they are located. If the energy produced by systems is sold back into the electrical grid, then the alternative energy systems could be considered "manufacturing and production". This limits where these systems can be located to those zones that allow manufacturing and production. Manufacturing and production is generally only allowed in industrial zones and in some commercial zones with approval of a conditional use review. Unlike other manufacturing and production uses, solar panels and wind turbines do not have off-site impacts that require that they be segregated by zone. For example, solar panels and wind turbines do not create significant impacts from noise, pollution, or traffic as other manufacturing uses often do. There are public benefits to allowing alternative energy producing systems like solar panels located on rooftops to sell energy back into the grid. It can provide an extra incentive for installing solar panels on a rooftop, for example. It may not be profitable for a small business to place solar panels on a rooftop simply to reduce their own power bill. Being able to sell power back to the grid may help it pencil out. Solar panels can already be located on rooftops located outside of industrial zones. This code change will clarify that the power generated by these panels can be used on-site and that it can also be sold back into the grid.

33.920.310 Manufacturing And Production

A. Characteristics. Manufacturing And Production firms are involved in the manufacturing, processing, fabrication, packaging, or assembly of goods. Natural, man-made, raw, secondary, or partially completed materials may be used. Products may be finished or semi-finished and are generally made for the wholesale market, for transfer to other plants, or to order for firms or consumers. Goods are generally not displayed or sold on site, but if so, they are a subordinate part of sales. Relatively few customers come to the manufacturing site.

B. Accessory uses. Accessory uses may include offices, cafeterias, parking, employee recreational facilities, warehouses, storage yards, rail spur or lead lines, docks, repair facilities, or truck fleets. Living quarters for one caretaker per site in the E and I zones are allowed. Other living quarters are subject to the regulations for Residential Uses in the base zones.

C. Examples. Examples include processing of food and related products; catering establishments; breweries, distilleries, and wineries; slaughter houses, and meat packing; feed lots and animal dipping; weaving or production of textiles or apparel; lumber mills, pulp and paper mills, and other wood products manufacturing; woodworking, including cabinet makers; production of chemical, rubber, leather, clay, bone, plastic, stone, or glass materials or products; movie production facilities; recording studios; ship and barge building; concrete batching and asphalt mixing; production or fabrication of metals or metal products including enameling and galvanizing; manufacture or assembly of machinery, equipment, instruments, including musical instruments, vehicles, appliances, precision items, and other electrical items; production of artwork and toys; sign making; production of prefabricated structures, including manufactured dwellings; and the <u>utility-scale</u> production of energy.

D. Exceptions.

1. Manufacturing of goods to be sold primarily on-site and to the general public are classified as Retail Sales And Service.

2. Manufacture and production of goods from composting organic material is classified as Waste-Related uses.

3. <u>Energy producing systems that generate energy from the environmental conditions of the site are considered Basic Utilities. Examples include solar hot water heating systems, photovoltaic panels, wind turbines, geothermal heating and cooling.</u>

4. <u>Energy producing systems that produce energy from the byproduct(s) of site operations and systems are considered Basic Utilities. Examples include co-generation of energy as a byproduct of a manufacturing process, and systems that produce power from waste produced on the site.</u>

5. <u>Systems that produce or distribute energy at a district or campus scale are considered Basic Utilities. Examples include radiant or steam heat systems that serve an institutional campus or a neighborhood, and systems where energy generated as a byproduct of an allowed use and then distributed to adjacent sites, to an institutional campus, or to the surrounding neighborhood.</u>

Item 61 – Green Energy and Use

This amendment changes the Basic Utility use category, to clarify that most distributed renewable energy systems (such as solar or wind) are allowed as basic utilities, and treated like local power lines and sewer pipes. This amendment also clarifies how "District Energy" systems are treated.

33.920.400 Basic Utilities

A. Characteristics. Basic Utilities are infrastructure services which need to be located in or near the area where the service is provided. Basic Utility uses generally do not have regular employees at the site. Services may be public or privately provided. All public safety facilities are Basic Utilities.

B. Accessory uses. Accessory uses may include parking; control, monitoring, data or transmission equipment; and holding cells within a police station.

C. Examples. Examples include water and sewer pump stations; sewage disposal and conveyance systems; electrical substations; water towers and reservoirs; systems that produce or distribute energy at a neighborhood or campus scale; energy production systems that generate energy from the environmental conditions of the site or from the byproducts of other site operations; water quality and flow control facilities; water conveyance systems; stormwater facilities and conveyance systems; telephone exchanges; mass transit stops or turn arounds, light rail stations, suspended cable transportation systems, transit centers; and public safety facilities, including fire and police stations, and emergency communication broadcast facilities.

D. Exceptions.
1. Services where people are generally present, other than mass transit stops or turn arounds, light rail stations, transit centers, and public safety facilities, are classified as Community Services or Offices.

2. Utility offices where employees or customers are generally present are classified as Offices.

3. Bus and light rail barns are classified as Warehouse And Freight Movement.

4. Public or private passageways, including easements, for the express purpose of transmitting or transporting electricity, gas, oil, water, sewage, communication signals, or other similar services on a regional level are classified as Rail Lines And Utility Corridors.

5. Utility scale production of energy is classified as Manufacturing and Production.

Item 61 – Green Energy and Use

This amendment changes the Waste Related use category, to clarify that small scale energy systems are allowed as basic utilities, and treated like local power lines and sewer pipes. This amendment also clarifies how "District Energy" systems are treated. Some types of neighborhood-scale or campus-scale renewable energy systems generate energy from the gas produced from compost or sewage waste. Without this amendment, it is possible that these uses would be prohibited.

A small biogas generator that powers residential development in suburban London.

CHAPTER 14
Solar Access

DEFINITION

Solar access for the purpose of this chapter, is the planning of a site layout to maximize the unobstructed availability of direct sunlight into a residential unit during the winter months and to minimize it during the summer months.

INTENT

The solar access guidelines outlined below were developed as part of the City's adopted Sustainable City Strategy, which aims at reducing the future energy use of the city's residents. They are intended to encourage residential development that considers solar access as an element of project design. Proper solar orientation of attached and detached residential buildings during the design phase can significantly reduce building energy use for space heating (in winter) and cooling (in the summer) without any other changes to the building design at a negligible cost. Additionally, proper orientation of residential streets and on-site landscaping may provide further reductions in building energy use.

Benefits associated with the proper solar orientation include: lower building heating and cooling energy demands and costs; preservation of future options for the use of solar energy technologies (e.g. solar photovoltaic and water heaters); and various other environmental and economic benefits (e.g. reduced air pollution, enhanced natural daylighting and the promotion of the conservation ethic).

Project developers are encouraged to review the City's Solar Access Design Manual for additional information and suggestions pertaining to the design of projects to further reduce energy use.

GUIDELINES

A. Solar Orientation

Site plans should be designed so that the solar orientation of residential structures can be optimized given the existing perimeter interface and grading constraints of a project:

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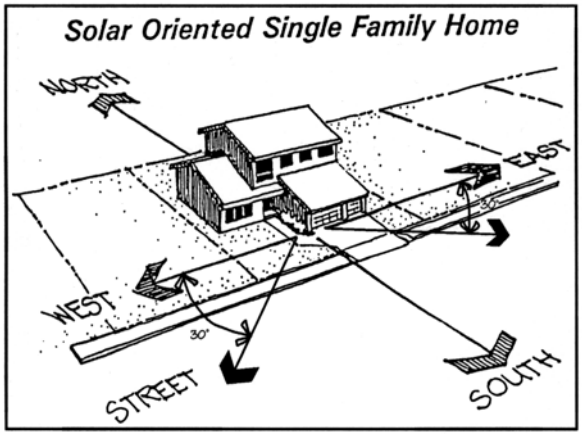

Fig. 14-1:

1. Solar oriented buildings should be designed so that windows face south to maximize solar orientation.

2. The long axis of a building (attached and detached residential) should be oriented east-west so that the broad face of the building facade faces south, thus maximizing the incidence of south facing windows.

3. Wide, south facing walls with windows should preferably abut front yards, rear yards or common open spaces, to facilitate solar access and to avoid solar obstruction from other, too close buildings.

4. To achieve optimal solar orientation of dwelling units with major window walls located at their fronts and/or backs, streets should be oriented within 30 degrees of true east-west axis (Fig. 14-1).

B. Percentage Of Solar Oriented Units

New projects should be designed to maximize the number of units that have proper solar orientation as noted:

Density Range	Solar Orientation Goal
0 to 10 DU/AC	80% of housing units
10 to 25 DU/AC	65% of housing units
25+ DU/AC	No Specific goal however projects should include passive solar and cooling designs.

Adjustments to the percentage of project units which should comply with the solar orientation goals noted above may be allowed when the following site conditions exist:

1. Natural topography is steep (20% or greater in slope when facing a direction greater than 45 degrees east or west of true south).

2. Existing street orientations, road stubs or compliance with grading policies prevent solar orientation of streets.

3. Application of these guidelines would result in a reduction of housing density otherwise achievable based on compliance with other guidelines.

4. Physical site constraints, such as creeks or natural topographic features prevent the solar orientation of streets and buildings.

5. Compliance with these guidelines would prevent compliance with other residential design guidelines.

C. Solar Access Of Existing Houses

New buildings should not be located in positions that will result in substantial shading of existing adjacent private open spaces that presently have substantial sun exposure enjoyed by the occupants. This guideline is intentionally flexible to discourage shading of adjacent properties while retaining for the review process a decision based on the circumstances of each case.

D. Solar Friendly Landscaping

Landscape plans should use deciduous street trees and on-site trees where these trees will grow to shade windows of residential structures. Such trees provide shade and help reduce temperatures inside adjacent units during the warmer months and shed their leaves to allow sunlight and better heat penetration during cooler months. Evergreen trees should be included in landscape plans at locations where they will not have solar impacts on buildings. Please refer to the City's Landscape and Irrigation Guidelines for a list of appropriate trees (Fig. 14-2).

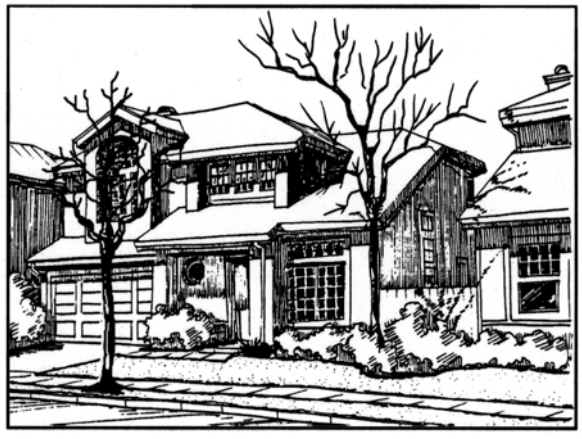

Fig. 14-2: Deciduous trees let in sun and warmth in the winter and provide shade in the summer.

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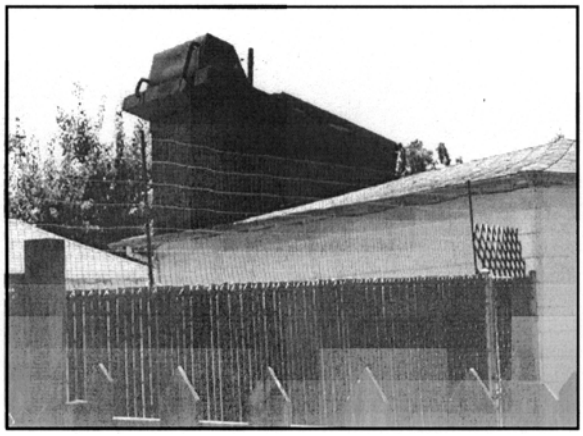

Fig. 14-3: Incompatible solar equipment.

E. Parking Area Landscaping And Orientation

Trees should be generously planted in landscaped areas around and within parking areas to buffer winds and to reduce heat and glare.

F. Solar Equipment

Exterior solar equipment on residential buildings should be visually compatible with the building and should generally not be easily visible from public streets (Fig. 14-3).

G. Solar Access Of Adjacent Units

Within a project, buildings should not be located in positions that will result in substantial shading of the private open space of adjacent units in the project. This guideline is intentionally flexible to discourage shading of adjacent units in the project while retaining for the review process a decision based on the circumstances of each project.

H. Overhand Design

Units should incorporate overhangs that are so designed that they allow the low winter sun to penetrate the unit while blocking the high summer sun.

I. Cooling Load Reduction

Cooling loads should be reduced as much as possible, not only through the incorporation of appropriately designed overhangs but also by landscaping and orienting units in such a way that excessive solar penetration is avoided during the hottest months of the year.

Sacramento, CA City Code 16.48.110 Improvement requirements. (Subdivisions Excerpt)

The improvements required by this chapter as conditions of approval of the final map or parcel map may include, but are not limited to, the following:

I. Provide for the planting of residential street trees of the species, condition, size, and in the location prescribed by the director of parks and community services at an appropriate future date by payment of a fee to the city in the sums established by resolution of the city council for each interior residential lot and for each corner residential lot within the subdivision. Trees shall be planted by city forces, or at the discretion of the director of parks and community services, by private contractors. The director of parks and community services shall give consideration to the provision of solar access, to the extent feasible, to residential dwellings at the time of selecting and planting of street trees;

San Diego, CA ORDINANCE NO. 9841 (NEW SERIES)

AN ORDINANCE AMENDING THE SUBDIVISION ORDINANCE, RELATING TO CONDOMINIUM CONVERSIONS, DESIGN AND ACCESS REQUIREMENTS, WATER SUPPLY, ADJUSTMENT PLAT PROCEDURES AND OTHER MATTERS

SECTION 81.401. DESIGN OF SUBDIVISION

All major subdivisions shall conform to the following requirements as to design:

(a) No tentative subdivision or parcel map received on or after October 1, 1979 shall be approved unless each lot within the subdivision can be demonstrated by the subdivider to have unobstructed access to sunlight to an area of not less than 100 square feet, falling in a horizontal plane 10 feet above the grade of the buildable area of the lot. The condition of unobstructed solar access shall be considered to be achieved when a specific area of not less than 100 square feet has been unobstructed skyview of the sun between azimuths of the sun at 45 degrees to the east and 45 degrees to the west of true south on December 21. The purpose of this requirement is to assure solar access to solar water heating systems as required by San Diego County Code Section 53.119, located on a future structure built on the lot.

(1) This requirement shall not apply to specific lots whenever a subdivider can demonstrate that it is infeasible to comply due to:

i. A finding that the provisions of this section will result in reducing allowable densities under applicable planning and zoning in force at the time the Tentative Map is filed.

ii. A finding that the provisions of this section will result in reducing the percentage of a lot which may be occupied by a building or structure under applicable planning and zoning in force at the time the tentative map is filed.

iii. A finding that compliance cannot be accomplished in a successful manner within a reasonable period of time, taking into account economic, environmental, social and technological factors.

iv. A finding that it is infeasible to comply due topographic conditions on or surrounding the land being subdivided, the configuration or orientation of the property being subdivided or existing road patterns contiguous to the subject property.

v. A finding that the nature of the existing or allowed future development contiguous to the subject property precludes adequate solar access to specific lots.

(2) For purposes of this section, a tentative map or tentative parcel map is "received" on the date when the applicable fees are paid and map is stamped "received" by the Department.

(n) The design of the subdivision shall reflect non-motorized vehicle trails required pursuant to Section 81.402(u).

(o) To the extent that a Specific Plan approved by the Board of Supervisors or a Major Use Permit approved for a Planned Development pursuant to Section 6600 et seq. of the Zoning Ordinance, provides subdivision design requirements contrary to those set forth in paragraphs (b), (d), (e), (h) or (i) above, the provisions of the Specific Plan or Major Use Permit shall govern.

Santa Cruz (24.08.430 Excerpt)

24.08.430 FINDINGS REQUIRED – GENERAL.

All applications for design permits shall be reviewed in relation to established criteria for design review. Applications for design review shall be approved if proposed buildings, structures, streets, landscaping, parking, open space, natural areas and other components of the site plan conform with the following criteria, as applicable.

5. The orientation and location of buildings, structures, open spaces and other features of the site plan shall be such as to maintain natural resources including significant trees and shrubs to the extent feasible, maintain a compatible relationship to and preserve solar access of adjacent properties, and minimize alteration of natural land forms, building profiles, location, and orientation must relate to natural land forms.

6. The site plan shall be situated and designed to protect views along the ocean and of scenic coastal areas. Where appropriate and feasible, the site plan shall restore and enhance visual quality of visually degraded areas.

9. The site shall provide open space and landscaping which complement buildings and structures. Open space should be useful to residents, employees, or other visitors to the site. Landscaping shall be used to separate and/or screen service and storage areas, separate and/or screen parking areas from other areas, break up expanses of paved area, and define open space for usability and privacy.

12. Building and structures shall be so designed and oriented to make use of natural elements such as solar radiation, wind, and landscaping for heating, cooling and ventilation.

14. In all projects in Industrial (I) Zones, building design shall include measures for reusing heat generated by machinery, computers and artificial lighting.

15. In all projects in Industrial (I) Zones, all buildings and structures shall be so designed and oriented to make use of natural lighting wherever possible.

16. Heating systems for hot tubs and swimming pools shall be solar when possible but in all cases energy efficient.

17.

City of Sebastopol Municipal Code

Title 16, §36.060 Dedication of Solar Easements.

§36.060 Dedication of Solar Easements

As a condition of approval of a tentative map or tentative parcel map, there may be imposed, in accordance with the provisions of Section 66475.3 of the State Subdivision Map Act, a requirement that the subdivider dedicate easements for the purpose of assuring that each parcel or unit in the subdivision shall have the right to receive sunlight across adjacent parcels or units in the subdivision for any solar energy system, as defined in Section 801.5 of the California Civil Code. In establishing such easements, consideration shall be given to feasibility, contour, configuration of the parcel to be divided and cost. Required easements shall not result in reducing allowable densities or the percentage of a lot which may be occupied by a building or a structure under applicable planning and zoning in force at the time such tentative map or tentative parcel map is filed. At the time of tentative map or tentative parcel map approval, the City Council, shall specify the following:
(a) The standards for determining the exact dimensions and locations of such easements.
(b) Any restrictions on vegetation, buildings and other objects which would obstruct the passage of sunlight through the easement.
(c) The terms for conditions, if any, under which an easement may be revised or terminated.
The foregoing provisions of this section do not apply to condominium projects which consist of the subdivision of airspace in an existing building where no new structures are added.