Spring 1979

Guaranteeing Solar Access in Virginia

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UNIVERSITY OF RICHMOND

LAW REVIEW

VOLUME 13 SPRING 1979 NUMBER 3

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I. INTRODUCTION

The idea of using solar rays as a source of power is certainly not new. History records Archimedes' use of a solar concentrator to burn enemy vessels.[1] The use of solar heat engines for over 150 years, the operation of a massive solar still to convert sea water to potable water in Chile for 40 years, and the development of an elaborate solar furnace in France are noted examples of the long standing and highly successful application of solar power.[2]

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The authors thank Richard P. Hankins, Jr., B.S., Princeton, 1968; M.S.A., University of London, 1971; M.B.A., University of Virginia, 1973; Associated with Torrence, Dreelin, Farthing & Buford, Inc., Engineers-Architects; for technical assistance in the preparation of this article.

1. Zillman, *Legal Aspects of Solar Energy Development*, 1976 ARIZ. ST. L. J. 25, 26 (1976); *See* D. HALACY, THE COMING AGE OF SOLAR ENERGY 34-36 (1973); F. DANIELS, DIRECT USE OF THE SUN'S ENERGY (1964); B. BRINKWORTH, SOLAR ENERGY FOR MAN (1972).

2. Zillman, *supra* note 1, at 26-27.

Solar hot water heaters also have been commonly used in Florida and the sun belt regions of the United States, as well as in Japan and Israel, over the last fifty years. *Id. See* Comment, *Designs on Sunshine: Solar Access in the United States and Japan*, 10 CONN. L. REV. 123 (1977).

A bank in Santa Fe, a church in Colorado, a factory complex in California, an office complex in Denver, an Ohio warehouse, and a veterinary clinic in Wisconsin are more recent examples of the existing and planned non-residential solar structures. *See* Miller, Hayes &

With the Arab oil embargo of 1973, the thought of harnessing sunlight took on a new seriousness. The American public was shaken from a comfortable dependence on oil and gas as its chief energy source. Startled by the embargo's ominous message of impending energy resource scarcity, Americans began in earnest to survey alternate energy sources in hopes of reducing the present reliance on fossil fuels. Coal (although a fossil fuel), nuclear power and solar energy emerged as the three most likely candidates to alleviate the stress of the energy shortage. Because of the negative health, environmental, and financial aspects associated with coal and nuclear power, these alternatives are less than satisfactory. The recovery and burning of coal requires the sacrifice of vast acreages of soil, risks the health of miners, incurs high transportation costs, and pollutes the air—disadvantages the nation may not be able to afford.[3]

Although nuclear fission is currently the fastest growing method of power generation in the United States,[4] it still represents less than 4% of the nation's electrical generating capacity, and only 1% of the nation's overall energy supply.[5] Increasing numbers of citizens are becoming convinced that the early commitment to nuclear energy by government policy makers has been misplaced. The drawbacks of heavy reliance on nuclear energy are numerous: thermal pollution because of the vast quantities of water needed to cool reactors; the unanswered question of permanent disposal of radioactive waste products; exhaustion and spiraling costs of uranium fuel supplies; the fact that nuclear power remains one of the most expensive and

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Thompson, *Solar Access and Land Use: State of the Law* 1977, National Solar Heating and Cooling Information Center, at 4 (Prepared for study on Legal Barriers to Solar Heating and Cooling of Buildings by Environmental Law Institute) [hereinafter cited as *Solar Access*]; Solar Utilization News, Nov. 1976, at 5, 7; Terrence M. Green, *Factory to be Heated by Solar Energy*, LOS ANGELES TIMES, Oct. 31, 1976, at 9; Whitney & Johnson, *Solar Heat for Our Clinic*, VETERINARY ECONOMICS, Sept. 1977, at 24.

There are currently over 1,000 buildings utilizing some sort of solar energy equipment in Virginia.

3. *See generally* R. CROWTHER, SUN EARTH (1977); D. CARR, ENERGY AND THE EARTH MACHINE (1976).

4. *Id.*

5. D. CARR, ENERGY AND THE EARTH MACHINE 96 (1976); *See also* R. CROWTHER, SUN EARTH (1977).

inefficient methods of power generation; and the awesome potential of nuclear accident.[6]

Solar energy suffers none of the environmental drawbacks associated with non-renewable fossil fuels or nuclear power. Solar energy is clean, non-polluting, and the supply is inexhaustible. It also is capable of relieving the burdens of competing for energy resources on countries, both rich and poor. The widespread application of solar energy systems, however, is not without obstacles. Presently, a major concern is expense. The average homeowner over the year can still heat and cool more economically with fossil fuels than with solar energy.[7] Solar energy is currently competitive only with electrical heating.[8] In weighing the true cost of solar energy in a cost-benefit analysis, however, one must be careful to avoid distorted perceptions. The primary expense in the use of any solar system is the large capital outlay for the solar energy machinery. Maintenance and unit operation costs are minimal. The system should be perceived as a capital improvement over the life of the structure as with any other capital improvement.

Because of economic, political and technological reasons solar energy should become an even more sound investment.[9] The scarcity of fossil fuels, increased production costs incurred in the search for domestic oil and natural gas reserves, and the systematic increase of crude oil prices by the OPEC nations will cause solar

6. *See generally* D. CARR, ENERGY AND THE EARTH MACHINE (1976); R. CROWTHER, SUN EARTH (1977).

7. Eisenstadt and Utton, *Solar Rights and Their Effect on Solar Heating and Cooling*, 16 NATURAL RESOURCES J. 363, 364 (1976).

8. Moskowitz, *Legal Access to Light: The Solar Energy Imperative*, 9 NATURAL RESOURCES LAWYER 177, 181 (1976).

9. EXECUTIVE OFFICE OF THE PRESIDENT, THE NATIONAL ENERGY PLAN, vii (1977);

> The diagnosis of the U.S. energy crisis is quite simple: demand for energy is increasing, while supplies of oil and natural gas are diminishing. Unless the U.S. makes a timely adjustment before world oil becomes very scarce and very expensive in the 1980's, the Nation's economic security and the American way of life will be gravely endangered. The steps the U.S. must take now are small compared to the drastic measures that will be needed if the U.S. does nothing until it is too late.
>
> —President Carter's National Energy Plan

See Comment, *Solar Rights: Guaranteeing a Place in the Sun*, 57 OREGON L. REV. 94, 94-97 (1977); Comment, *Securing Solar Rights: Easements, Nuisance, or Zoning?*, 3 COLUMBIA J. OF ENVIRONMENTAL L. 112 (1976).

energy to become a more attractive alternative. The instability of Middle East politics also increases the fear of an acceleration in the energy shortage. Further, the expense of a solar energy unit is largely a problem of technology which, as solar energy overcomes the inherent resistance of large oil corporations and public utilities, can be expected to improve. Units then can be expected to be mass produced. This mass production, coupled with technological improvements, will drive the costs of solar machinery to competitive levels with the conventional modes of heating and cooling.[10] Solar water heaters already have crossed to a positive cost-benefit analysis in many regions. Therefore, it is reasonably certain that the current accelerating use of solar energy systems will continue.

In response to the energy shortage, the federal government, although unsure of its appropriate degree of involvement, has initiated programs and studies to encourage the use of solar energy.[11] In a flurry of activity in 1975 and 1976, various legislatures perceiving the increasing application of solar energy, considered over 200 bills of legislation offering some incentive or benefit to the solar user.[12]

The policies of the federal and state governments as "grant-giver, utility regulator, property-owner, standard-setter and taxing authority"[13] can easily promote or discourage the landowner's use of solar power. In addition to the technological, political, and policy issues discussed earlier, this hastening of solar technology raises some significant legal issues which must be resolved if solar energy is to reach its promise as a major source of energy.

Most authorities agree that the guarantee of solar access is the single most important legal issue concerning solar energy.[14] The

10. *Supra* note 8, at 181-183.

11. Thomas, Miller & Robbins, *Overcoming Legal Uncertainties About Use of Solar Energy Systems,* AMERICAN BAR FOUNDATION 2 (1978) [hereinafter cited as Thomas]; Comment, *Common Law Sun Rights: An Obstacle to Solar Heating and Cooling?,* 3 J. OF CONTEMPORARY L. 19 (1976) [hereinafter cited as *Common Law Sun Rights*].

12. Thomas, *supra* note 11, at 3.

13. Zillman, *supra* note 1, at 26.

14. "A careful assessment of the possible legal problems associated with the use of solar energy systems for heating and cooling yields a firm conclusion: the one legal issue that will not be resolved or diminished in importance with experience alone is guaranteeing access to sunlight." Thomas, *supra* note 11, at 20; "Assured access to sunlight, which is necessary to induce investment in capital-intensive systems, is the primary legal problem with the use of solar energy systems." *Id.* at 7; *See* Thomas, *Solar Energy and the Law,* CASE & COMMENT 3, Nov.-Dec. 1978.

solar user must invest in a system of collecting equipment which is usually placed on the rooftop or the ground near the solar structure. Two problems arise. First, the solar collecting devices must have direct access to the sun, as direct and uninterrupted solar access is critical to the system's operation. A neighboring building, tree, or billboard, if allowed to shade the collector, would incapacitate the collector and destroy the value of the solar energy system. A prudent landowner, as well as the prudent mortgagee, would hesitate to invest in a solar system until uninterrupted access to sunlight is assured.[15] The second problem facing the potential solar system user, although actually a subset of the previous issue, is the presence of restrictive public or private land use regulations.[16] The weight, size, general appearance, and location of collecting units may displease neighbors and cause local governmental authorities to view them with disfavor. Such restrictions discourage the increased use of solar systems and may prohibit altogether the installation of solar equipment.

It is to these two basic legal issues that this article is addressed. The following sections will address in order: the mechanics of a solar energy system; the problem of solar access; the traditional public and private remedies available at common law; Virginia's legislative response to the problem of assuring solar access; and some suggestions for the resolution of anticipated solar access conflicts in Virginia.

II. How Active and Passive Solar Energy Systems Work

The sun transmits its energy across space in the form of visible light and electromagnetic radiation which reaches the Earth's atmosphere with a constant intensity of 170 trillion kilowatts.[17] The quantity of energy reaching the land mass of the United States at any given moment is more than 700 times the current demand for all forms of energy of the nation.[18] The thermal conversion of this radiant energy is the task of all solar systems for heating water and the heating and cooling of buildings.

15. Thomas, *supra* note 11, at 21.
16. *See* Zillman, *supra* note 1, at 32 and Thomas, *supra* note 11.
17. *Supra* note 8, at 180.
18. *Id.*

Although other forms of present and potential power are directly attributed to the energy of the sun—wind currents,[19] ocean heat gradients and currents,[20] and photovoltaic cells[21]—their use is beyond the scope of this article. This article focuses only on those solar systems used for heating and cooling of buildings and the heating of water.

In short, all solar systems absorb, store, and distribute the sun's radiant energy.[22] The heart of the system is the solar collecting device or solar collector which traps the sun's rays. In simple form, a solar collector is a metal plate painted flat black for maximum absorption of the sun's rays. The plate is enclosed and covered with a plate or plates of glass or transparent plastic which trap the heat within the collector. The underside of the plate is insulated to reduce heat losses from the absorbing plate. The captured heat is then removed from the absorbing plate by means of a heat transfer medium, generally air or water. As the heat transfer medium passes through or near the blackened plate, it is heated and then transferred to points of use or storage, dependent upon the energy need.

The system is monitored by automatic or manual controls which determine whether the system is active or passive. Active systems use mechanical means—pumps, fans, valves, and thermostats—to carry the transfer medium warmed in rooftop or ground placed collectors to storage tanks and then from these storage tanks to the living spaces as needed. In contrast, passive (direct gain) solar systems use the house itself as both collector and storage medium, with little or no assistance from mechanical devices. The principal and essential differentiation between a passive solar home and a conventional home is the presence and maximized use of mechanisms to receive, retain, and redistribute the warmth absorbed during the day. A common approach is the placement of windows and skylights

19. *See* CARR, ENERGY AND THE EARTH MACHINE (1976); Zillman, *supra* note 1, at 31; *See* Thomas, *supra* note 11, at 6.

20. *Solar Energy,* ENERGY RESEARCH AND DEVELOPMENT ADMINISTRATION, 1976; *See* Zillman, *supra* note 1, at 31.

21. *See* Thomas, *supra* note 11, at 5-6.

22. *See generally* Thomas, *supra* note 11; APPLICATIONS OF SOLAR ENERGY FOR HEATING AND COOLING OF BUILDINGS, AMERICAN SOCIETY OF HEATING, REFRIGERATING AND AIR-CONDITIONING ENGINEERS, INC., (R. Jordon & B. Liu, Editors, New York, 1977); B. ANDERSON, THE SOLAR HOME BOOK—HEATING, COOLING AND DESIGNING WITH THE SUN (1976); D. WATSON, DESIGNING AND BUILDING A SOLAR HOUSE—YOUR PLACE IN THE SUN (1977).

for southern exposure and the use of heat retaining floor tiles and moveable panels to retain the absorbed warmth. With either an active or passive solar home, in most regions, a back-up system using conventional fuels is required should the sun not shine for long periods during severe weather or should the demand for heat exceed the solar supply in storage.

While ultra-violet and infrared rays as well as visible light are utilized to power the solar collector, only those rays striking the collector directly can be used for solar energy power.[23] Diffused or randomly reflected radiation is of minimum use to power solar systems. It is therefore imperative that the solar collector have unobstructed and uninterrupted access to the direct rays of the sun. Although in the commercial application of solar energy some experimental systems have enjoyed great success through the use of parabolic mirrors (which either are stationary or mechanically track the sun in its path across the horizon) to capture, concentrate, and redirect the sun's rays to a central solar collector,[24] the requirement is the same regardless of the system—the initial collector must be assured unobstructed sunlight.

III. The Problem—Shading of the Collector

The objective of any solar access right is to legally secure the unobstructed flow of the direct rays of the sun to the solar collector. The problem of the solar using landowner may be simply stated: he must be provided some injunctive remedy against his neighbor's activities which would shade his solar collecting device. The simplicity of the problem hides the complexity of the solution.

> The assumption that the developer's lawyer has only to add a clause or two to the deeds to insure a right of access inaccurately assesses the task.
>
> . . . .
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> . . . To draft such a right, numerous factors must be considered, including the nature of potential obstructions, the changes in the solar angle that occur on a daily and seasonal basis, the topography of the land in the development, the size and location of the solar

23. *See* note 7 *supra*, at 374-75.

24. *See* Thomas, *supra* note 11, at 6.

> energy devices to be used, and the technological characteristics of the devices.
> . . . [T]he access rights must be worded not only to preclude the expansion of man-made objects, but also to impose a duty on neighbors to prevent trees from obstructing access through natural growth.[25]

One authority has handily summarized the pertinent questions which always arise when one addresses a residential solar access problem:

> 1) Does the homeowner have a right to the sunshine [slanting across his neighbor's property] that is blocked by his neighbor's building or tree? 2) If he doesn't have a right to the solar energy, should such a right be given him? 3) If such a right is given to him, how should it be done?[26]

The client proposing to retrofit solar equipment to his home in an established neighborhood presents even further considerations for the drafter of solar access rights than does the developer of a proposed subdivision. Is there anything that can be done for a potential solar user whose neighbor's vegetation leaves no avenue for the direct rays of the sun to the collector thereby rendering his proposed installation of solar equipment infeasible?[27]

The problem of solar access, however, may not be as widespread as many perceive. If the solar user owns several acres and constructs his collector at a location distant from his property's southern boundary, the problem of vegetation shading is avoided and a neighbor's construction of a highrise structure blocking the sun is unlikely. Also, aerial photographs of established residential neighborhoods with uniform height and set back restrictions have shown shading on the roofs of the houses to be minimal during the hours of best sun collecting activity.[28] The fear always exists, nevertheless,

25. Myers, *Solar Access Rights in Residential Developments,* THE PRACTICAL LAWYER 13, 14 and 17 (March 1, 1978).

26. Eisenstadt and Utton, *supra* note 7, at 366.

27. *See* National Solar Heating and Cooling Information Center, *A Forum on Solar Access: Proceedings Before the New York State Legislative Commission on Energy Systems* 4 (1977) (testimony of David Engel) [hereinafter cited as *A Forum on Solar Access*].

28. Phillips, *Assessment of a Single Family Residence Solar Heating System in a Suburban Development Setting,* SOLAR HEATED RESIDENCE ANNUAL RESEARCH REPORT (prepared with

that the character of the neighborhood will change allowing the construction of multiple storied structures which would block the path of the sun's rays.

No Virginia case at the time of this writing directly addresses the problem of solar system access. The following section will survey the traditional private and public doctrines of real property developed to resolve conflicts between neighboring land owners and may be of use in resolving the solar access problem. It is hoped that this survey will enhance the reader's overall understanding of the solar access guarantee problem as well as illustrate the common law limitations which stimulated passage of the recent solar easement law in Virginia.

IV. Traditional Common Law Private and Public Doctrines

Unlike the absolute right of a landowner to receive light falling perpendicularly on his land, with the exception of the occasional trespass by aircraft shadows,[29] no jurisdiction among the states recognizes a common law right to receive sunlight which slants across property owned by a neighbor.[30] With the possible exception of Hawaii, no area in the United States receives sunlight from directly overhead but rather at an angle from the horizon, thereby transversing across property owned by neighbors.[31] Therefore, how can such a right be acquired? Since the common law doctrines of real property traditionally have been used to resolve controversy between neighboring land owners, it is appropriate to ground our probe in that common law.

A. *Easements for Light and Air*

Probably the most often posed solution to the solar access problem is that of the law of easements for light and air. Since there are

support of National Science Foundation) (NSF-RA-N75078, July 1975) 92, n.77; Dubin, *Analysis of Energy Usage on Long Island from 1975 to 1995: The Opportunities to Reduce Peak Electrical Demands and Energy Consumption by Energy Conservation, Solar Energy, Wind Energy and Total Energy Systems* (sponsored by the Suffolk County Department of Environmental Control) (Suffolk County, N.Y., 1975); *Solar Access, supra* note 2, at 3.

29. U.S. v. Causby, 328 U.S. 256, 260-61 (1946).

30. *See generally Solar Access, supra* note 2.

31. Thomas, *Solar Energy and the Law,* Case & Comment 3, Nov.-Dec. 1978, at 8.

three basic methods in which an easement may be acquired in a neighbor's land, each method will be discussed.

1. Easements by Prescription

Under this rationale an owner of one tract (the dominant tenement) acquires by his adverse and uninterrupted use for a period of time (much in the nature of acquiring title by adverse possessors) a right to the continued use of his neighbor's land (servient tenement) for the purpose established by his adverse and continued use.[32] The owner of the servient tenement continues to own his land, as the dominant tenement owner's use was not exclusive, which distinguishes prescription from title acquired by adverse possession. However, the owner of the servient tenement may not conduct any activity which would interfere with the right acquired by the dominant owner. If he does so, an action by the dominant tenement owner for either damages or an injunction will be upheld.

Due to its negative character, the right to acquire an easement for light and air by prescription has been soundly rejected in every jurisdiction in which it has been considered.[33] Because the prescriptive claimant of an easement for light and air makes no entry upon his neighbor's land, no notice of any adverse use is provided. Courts, therefore, have felt that it is best to restrict the creation of negative easements by requiring an express agreement between the parties.

However, at least one authority has called for a change in law so as to permit the creation of solar access easements by prescription.[34] While perhaps sound in theory, it is exceedingly unwise, as well as of limited use, in practical application. If such a shift in the law as to favor the creation of easements for solar access by prescription were to occur, a race among neighboring landowners to hastily develop their land first might take place.[35] A neighbor contiguous to

32. *See generally* W. BURBY, REAL PROPERTY § 31 (3rd ed. 1965).

33. *See* note 8 *supra,* at 188; Tunstale v. Christian, 80 Va. 1 (1885).

Easements may be either negative or affirmative. When an affirmative easement is involved the adverse claimant goes upon the land of another and makes some use of the land; whereas with a negative easement, there is no entry upon the land of another but rather some restriction is placed upon the servient owner in his use of the land which use otherwise would be legally permitted.

34. *Supra* note 8.

35. *See A Forum on Solar Access* (testimony of Ms. Gail Boyer Hayes), *supra* note 27, at

the tract of a solar energy system user would be forced to develop his land perhaps well in advance of the time necessary or desired in order to avoid the acquisition of an easement by the solar user; thereby restricting his airspace which may later prohibit or hinder development of his property. Further, the prudent landowner would hesitate to invest in and install solar equipment knowing that his neighbor could at any time before the passing of the prescriptive period of years defeat his claim for a solar access easement by constructing improvements or planting trees which block the collector from direct sunlight.[36]

An analogy to prescriptive easements is the English Doctrine of Ancient Lights. Under this doctrine an easement for light and air is acquired by the long standing enjoyment of receiving light and air from across the adjoining neighbor's property. This doctrine has been received unfavorably in all American jurisdictions.[37] Even if it were to be adopted at this date the negative factors of hasty development and of the lack of a guarantee of continued right to access at the time of the installation of the solar system are not avoided. Further, the doctrine provides only the amount of light historically defined as that necessary to read a book or to satisfy the "grumble line" test.[38] A substantial deprivation of light occurred due to the neighbor's obstruction "if in the half of the room nearest the window an ordinary person reading ordinary print would have to turn on a light" and "the 'grumble line' would be passed. . . ."[39] The result is that even if the court were to resurrect the doctrine, it is of limited value to the solar system owner. The test for the doctrine could be fully satisfied by a neighbor allowing diffused light, sufficient to enable the solar system owner to read while blocking the direct sunlight needed to power the solar system.

24-25: "A first-person-to-develop-wins approach means that a sort of race could develop between adjacent property owners. One property owner would try to finish her highrise office building before her neighbor got his solar bungalow functioning. Both parties may rush into development before they really want to, to preserve the value of their land."

36. *Id.* at 25. "[T]here would be no certainty of success until a project was well underway and thousands of dollars had been spent. An essential attribute of any good access law is that it should let people know their rights even before a project is begun." *Id.* Blue Ridge Poultry & Egg Co. v. Clark, 211 Va. 139, 176 S.E.2d 323 (1970) (20 year prescriptive period in Virginia).

37. Thomas, *supra* note 11, at 23-24.

38. *Id.*

39. *Common Law Sun Rights, supra* note 11, at 23.

The current state of the law is perhaps best represented in the often cited case involving the Fontainebleau and Eden Roc beachfront hotels in Miami Beach.[40] The Eden Roc sought to enjoin the Fontainebleau, located south of the Eden Roc, from continuing construction of a fourteen-story addition to their existing structure. If the construction were allowed to continue, the addition would shade the swimming pool and sunbathing areas of the Eden Roc from 2:00 p.m. until sunset during the winter months, thereby rendering the areas unfit for the enjoyment of its guests. The court, in denying plaintiff relief, announced:

> No American decision has been cited, and independent research has revealed none, in which it has been held that—in the absence of some contractual or statutory obligation—a landowner has a legal right to the free flow of light and air across the adjoining land of his neighbor.[41]

2. Easements Implied by Necessity

Courts have traditionally taken the same negative view toward implying easements for light and air as they have toward recognizing easements for light and air by prescription.[42] Those cases in which an implied easement has been recognized have been narrowly limited to the fact situation where an aggrieved landowner abutting a public street has been denied access to light from the airspace above the street.[43]

The Virginia court in *Shield v. Peninsula Land Co.*[44] recognized a limited right of plaintiff to enjoy the light and air received from the street but refused to enjoin the construction by defendant on real property situated on the opposite side of the public street which would block plaintiff's view of the York River. The court, being of the view followed almost universally among the states, declared "that servitudes of the civil law in these respects [light, air and view] are not recognized in the doctrine of easements as expounded

40. Fontainebleau Hotel Corp. v. Forty-Five Twenty-Five, Inc., 114 So 2d 357 (Fla. 1959).

41. 114 So.2d at 359.

42. *Common Law Sun Rights, supra* note 11, at 25; *See* W. BURBY, REAL PROPERTY § 28 (3rd ed. 1965).

43. *Common Law Sun Rights, supra* note 11, at 26.

44. 147 Va. 736, 133 S.E. 586 (1926).

in this country."[45] Since in Virginia sunlight does not strike one's property from directly overhead, the solar user has no guarantee to direct sunlight transversing his neighbor's land.[46] The solar user is assured only the diffused rays received from the airspace above the street which are insufficient to power solar equipment.

As the Virginia court has upheld easements for light and air created by an express agreement between the parties, this does not mean that there can be no easements for light and air but rather that if they are to be recognized, they must be based on the express agreement of the parties and not be by prescription or implication.[47]

Even if the court were to reconsider its position on the issue of implied easements, the claimant is faced with some rigid requirements which must be met before the court will be inclined to rule in his favor.[48] The rationale for permitting the implication of an easement, despite the absence of express language by the parties, is to give effect to the unarticulated intention of the parties—or that the easement in the defendant's property is so necessary for the enjoyment of the plaintiff's property (conveyed to plaintiff by defendant) that the parties would have intended to include this right in the conveyance. By definition, the two parcels involved must have been owned by a common grantor at the time of the conveyance. Second, at the time of the severance of one tract from the other there must exist some necessity for the use sought by the claimant.[49] The courts in considering this requirement have varied in the degree of necessity that must be demonstrated before the easement will be recognized.

In those jurisdictions following the "strict or absolute necessity" test, a higher degree must be shown that in those jurisdictions requiring a "reasonable necessity" which requires only that the use claimed by plaintiff be reasonably necessary for the enjoyment of the dominant parcel.[50] It is further required in most jurisdictions

45. 147 Va. at 748.

46. *See* notes 99-101 *infra.*

47. First National Trust & Savings Bank, Trustee v. Raphael, 201 Va. 718 (1960).

48. *Common Law Sun Rights, supra* note 11, at 25; *See* W. BURBY, REAL PROPERTY § 28 (3rd ed. 1965).

49. *See* W. BURBY, REAL PROPERTY § 28-29 (3rd ed. 1965); *But see* Finn v. Williams, 376 Ill. 95, 33 N.E.2d 226 (1941).

50. W. BURBY, REAL PROPERTY § 28-29 (3rd ed. 1965).

adopting the reasonable necessity approach that some apparent and continuous use was made of the servient tract for the benefit of the dominant parcel prior to their severance.[51] This requirement is often known as the "quasi-easement" requirement, in that a landowner may not have an easement in his own lands, therefore, the use to which he subjected the servient tract for the benefit of the dominant tract could be only a quasi-easement or a prior use.[52]

The problems encountered in attempting to apply this rationale to claims for solar access are perhaps best illustrated in the casebook example of *Mairiello v. Arlotta,*[53] wherein plaintiff sought an injunction against the wall built by defendant on the property line which totally blocked the light to plaintiff's kitchen window. The court refused to find a strict necessity in that plaintiff has the alternative of installing a skylight in the kitchen and refused to adopt the reasonable necessity test. Even if the court were to adopt the lesser degree test, the problems of showing prior use of the light and air (which because of its negative easement character courts view with disfavor) and common ownership of the tracts still remain.

It is apparent from the stringent requirements imposed by courts prior to the implication of an easement that this particular rationale is most suited to affirmative easements and was most likely adopted for the purpose of providing relief to the landlocked grantee needing access through his grantor's land. It does appear it could perhaps find application if the solar system were operating upon a parcel of grantor's land prior to its severance.[54] However, a solar system user might fail to satisfy the test of necessity under this rationale as long as conventional fuels remain competitive with solar energy.

3. Express Easements by Grant or Reservation

In Virginia, as well as in most jurisdictions, easements for light and air may be conveyed as surely as any other legal purpose.[55] Little reason can be shown why courts would not be further inclined

51. *Id.*

52. *Id.*

53. 364 Pa. 557, 73 A.2d 374 (1950).

54. *See* W. BURBY, REAL PROPERTY § 28 (3rd ed. 1965).

55. *See* First National Trust & Savings Bank, Trustee v. Raphael, 201 Va. 718, 113 S.E.2d 683 (1960); *See also A Forum on Solar Access, supra* note 27, at 4.

favorably to an agreement providing for unobstructed and direct access to the sun.

Express easements for solar access, however, do present some unique problems to the draftor of the agreement. Because the Virginia legislature has specifically addressed this problem, an in-depth consideration of easements for solar access will be reserved for the following section of this article.

B. *Nuisance - Public and Private*

The solar energy user whose neighbor blocks the flow of sunlight to the solar collector will experience difficulty in getting the court to support his claim that his neighbor's action constitutes nuisance.[56] Public nuisance is generally enforced by public officials and the nature of what constitutes a nuisance is typically defined by statute or ordinance.[57] The policy toward an obstruction of light in the American and English courts is reflected in Tiffany's popular treatise: "[T]he owner of land has no 'natural' right to light and air and cannot complain that either has been cut off by the erection of a building adjoining."[58]

Although the solar system user can show an injury different from the general public which would entitle him to a cause of action in private nuisance, the attitude demonstrated by courts in barring prescriptive and implied easements does not provide a favorable forum. As long as the neighbor's structure which blocks plaintiff's sunlight serves a useful purpose, "even if malice be the dominant motive,"[59] the court will perceive the issue as a conflict between competing land uses and relief will be denied the aggrieved solar user.[60] This appears to be the universal rule unless the *sole* motive of the neighbor erecting the obstruction is malice.[61]

At best the solar user is faced with a lawsuit, hardly a satisfactory prospect given the current balancing of the equities. Were the equities to shift as the energy crisis accelerates and the court to perceive

56. *See* Zillman, *supra* note 1, at 39.
57. *Id.*
58. H. TIFFANY, THE LAW OF REAL PROPERTY § 763, at 216 (1939).
59. *Common Law Sun Rights, supra* note 11, at 27.
60. Zillman, *supra* note 1, at 39.
61. *Common Law Sun Rights, supra* note 11, at 27.

"blocking the sunlight to a solar collector as a new and distinct nuisance action"[62] rather than the traditional nuisance for obstruction of light, the solar user might receive relief via a nuisance action.[63] It does not, however, provide the needed guarantee prior to installation of equipment and leaves the aggrieved solar user with the prospect of litigation which may compensate him with damages rather than the injunction he seeks.[64]

C. *Restrictive Covenants*

By nature restrictive covenants find their most common use in new developments. The subdivision developer can impose covenants on the subsequent owners of the lots by drafting into either the plat, deeds to the grantees of the lots of the subdivision, or by filing a declaration of restrictions. The covenants imposed would restrict the height and placement of structures and trees so as to avoid blocking of solar collectors of users within the subdivision. The right to enforce is reciprocal among the owners of the lots and courts readily grant injunctive relief upon their breach against present as well as future purchasers who buy with notice.[65] Notice, in this situation, would be provided by recording the plat, declaration or deeds to the purchaser's predecessor in title.

The doctrine of restrictive covenants might find further use in established neighborhoods where the shading of roofs and southern

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62. *Id.* at 28.

63. *Id.*

64. *See A Forum on Solar Access, supra* note 35, at 24-25. If a legislature declares something to be a public nuisance, courts will usually defer to a legislative judgment. Nevertheless, there are drawbacks to a public nuisance approach:

1. Lawsuits would be necessary in each individual case to prove the existence of a nuisance.
2. Injunctive relief would not be available in many jurisdictions.
3. In some cases no compensation would be allowed owners of restricted property, even if they truly deserved it.
4. As the outcome of suits would be uncertain, neither party to a potential dispute could have any security until construction was advanced.
5. Nuisance law is complicated and unpredictable. For instance, the majority view is that a person who in good faith comes to an existing public nuisance has rights to have it abated—even though it was there long before she arrived. Imagine the difficulty of abating the nuisance of the World Trade Center if a solar system were put on the roof of a townhouse to the north of us.

65. *See generally* W. BURBY, REAL PROPERTY § 40 (3rd ed. 1965).

yards is currently no problem. Each owner could by agreement bind himself not to obstruct the solar collector of his neighbor in return for the promise of his neighbor not to do likewise.[66] The problem, of course, is securing the promises of neighbors collectively and the southernmost owner—whose location south and outside the neighborhood and who is not a party to the agreement—is provided no guarantee. Administratively, such a collective agreement is unlikely. Express easements may provide a more simple method to accomplish the task.

Obviously, the use of covenants shows most promise in new developments where potential buyers would be attracted to the homogeneity of a solar neighborhood. Their biggest disadvantage is the limited applicability to established neighborhoods and commercially and industrially developed land where structures are not of uniform size and height.[67] Nevertheless, for newly planned developments they provide a simple, effective and inexpensive method of guaranteeing solar access.

The presence of restrictive covenants in established neighborhoods may hinder solar homes as effectively as solar access covenants in new developments encourage them. Covenants designed to enhance the architectural or cosmetic appearance of the neighborhood may by their wording prohibit the installation of solar equipment.[68] For example, if the covenants provide that roofs shall only be covered by cedar shakes, the placement of a solar collector may be prevented.[69] If, however, the covenants are designed to prohibit certain undesigned activities or uses such as commercial and industrial uses, the potential solar system user should have no problem in installing his solar equipment.[70] He may, nevertheless, still be presented with the problem of securing solar access across his neighbor's land.

When faced with covenants which prohibit the proposed installation of solar equipment the potential solar user has three possible avenues of action.[71] First, he can seek declaratory relief in court that

66. *Id.* at § 41.
67. *Solar Access, supra* note 2, at 11.
68. *Id.* at 12.
69. *See A Forum on Solar Access, supra* note 27, at 5.
70. *See* Jones v. The Park Lane for Convalescents, Inc., 384 Pa. 268, 120 A.2d 535 (1956).
71. *Solar Access, supra* note 2, at 12.

the covenant is either unenforceable because it is too vague for enforcement, it is an invalid restraint on alienation, or that changes in circumstances no longer make it equitable to enforce. Secondly, the solar system user may pay damages in contract rather than having his installation prohibited. Finally, the potential user might go ahead with the installation and hope his neighbor will not challenge his violation of the covenants. A suit seeking declaratory relief appears to be the solar user's best alternative. The solar user could enter the court of equity relying on the theory that a significant change in circumstances has taken place and argue that a public policy favoring energy conservation dictates that it is inequitable to enforce the restriction when balanced against the purely architectural grounds of the covenant.[72]

D. *Zoning*

Zoning holds much potential as a method of guaranteeing solar access, although the creation of solar access rights goes beyond the traditional limits of zoning for providing light and air.[73] Solar access could be assured by an ordinance requiring height and setback restrictions.

> A municipality's use of setback lines, height restrictions, or minimum floor area ratios to insure adequate access to light and air for health reasons, has been held a valid exercise of the zoning power. The need to promote the conservation of energy is an equally justifiable use of the police power.[74]

The advantages to using this method of ensuring solar access are obvious. Since it is a public control measure, each landowner in the neighborhood need not agree to the restrictions as with restrictive covenants, yet he will be bound to the solar access restrictions if the ordinance satisfies the safeguards imposed by the Constitution.[75] Zoning offers more flexibility than does restrictive covenants; non-

72. W. BURBY, REAL PROPERTY § 41 (3rd ed. 1965).

73. *See* G. L. Reitze, *Solar Rights Zoning Guarantee*, 1976 WASH. L. Q. 376; Comment, *Securing Solar Energy Rights: Eastments, Nuisance, or Zoning?*, 3 COLUM. J. OF ENVT'L. L. 112 (1976); *See also* Eisenstadt and Utton, *supra* note 7.

74. *See* note 8 *supra*, at 207.

75. *See* Eisenstadt and Utton, *supra* note 7, at 379-84.

conforming uses and variances may be granted to prevent injury in unusual situations. Also, zoning controls can be enforced through either public or private mechanisms. Further, zoning ordinances can be amended as the circumstances change—new developments in solar technology may necessitate such changes. Finally, zoning is the most practical method of dealing with solar rights in established neighborhoods.[76]

It also has been suggested that zoning might find an application different than that provided through the traditional height, setback and percentage-of-lot-area-covered limitations. This could be accomplished by either zoning skyspace for solar access use or creating solar use districts.[77]

Caution should be urged before enacting sweeping zoning ordinances. "Blanket zoning for solar access may conflict with other energy-conserving techniques: compact, contiguous development, for example, cuts the fossil fuels needed to heat and cool structures and for transportation."[78] By requiring larger lots and greater setback requirements travel distance to work and shopping places may be increased, resulting in conservation of fossil fuels for heating and cooling while increasing those fuels used in transportation.[79] Further, because of the inherent flexibility of zoning over other methods, zoning can typically be readily changed and zoning boards are sometimes susceptible to local politics.[80] Also, it may be impractical to apply zoning regulations to developed areas, as structures cannot be moved to meet the requirements for southerly setbacks and height restrictions may already be exceeded.[81]

As with restrictive covenants, zoning can be used to hinder as well as promote the use of solar energy. Zoning laws providing for aesthetic controls and structure orientation may discourage or prohibit installation of solar equipment.[82] The flexibility inherent in the zon-

76. *Id.* at 413.
77. *Solar Access, supra* note 2, at 19-22; *See also A Forum on Solar Access, supra* note 27, at 26.
78. *Solar Access, supra* note 2, at 22.
79. *A Forum on Solar Access* (Testimony of Richard Stein), *supra* note 27, at 21.
80. *Solar Access, supra* note 2, at 22.
81. *Id.*
82. Zillman, *supra* note 1, at 43.

ing process should be used in order that solar energy be allowed its fullest potential.

E. *Building Codes*

As in the case of zoning, the authority for building codes is found in the state police power which, by the enabling acts, is delegated to the county or municipal governments.[83] The typical building code, for the sake of public health and safety, regulates the "types of materials used, structural stresses, electrical use, plumbing, ventilation and heating design."[84] The principal method of enforcement is through the permit process.

Few building codes were implemented with solar energy in mind. As a result, building code requirements may discourage solar energy use without any intent to do so. As solar technology becomes more economically feasible, the importance of this problem should diminish.[85]

It also has been suggested that the building permit process be used as a method of solar access guarantee.[86] The system would require local authorities, once a permit was issued for a structure using a solar system, to reject applications for permits for adjacent improvements which would block solar access to the solar structure.[87] The disadvantages are the problems of administration and the dangers of premature development discussed earlier in the section dealing with prescriptive easements.

F. *Transferable Development Rights*

This sparsely used concept has been applied to control development in larger cities and to preserve environmentally critical areas and historical sites. Under this concept:

> A planning authority establishes a conservation area where development is restricted and a transfer area where development can

83. *Id.* at 40; *See* Rivkin, *Courting Change: Using Litigation to Reform Local Building Codes*, 26 RUTGERS L. REV. 774 (1973); Note, *Building Codes: Reducing Diversity and Facilitating the Amending Process*, 5 HARV. J. LEGIS. 587 (1968).

84. Zillman, *supra* note 1, at 40.

85. *Id.* at 41-42.

86. *A Forum on Solar Access*, *supra* note 35, at 25-26.

87. *Id.*

> occur. Owners of restricted parcels are issued development rights, which may be transferred to parcels in the areas approved for development. The rights may be sold, or the owner of the restricted parcel may use them on land that he owns in the transfer area . . . .
>
> A conceptual key to the TDRs is the notion that the development potential of a parcel may be severed from the physical location of that parcel.[88]

In applying this approach to solar access, that development density which would interfere with solar access is prohibited. The result is an inequity among landowners. The concept may be reconciled, however, as landowners receive cash equivalents for the loss of development potential.[89]

G. *Prior Appropriation — Water Laws*

It has been suggested that the prior appropriation doctrine of the water rights laws as applied in the arid regions of some western states be adapted for solar energy.[90] Under this system the first user to appropriate or use the water becomes the one entitled to continue his appropriation. This analogy may seem somewhat strange to those familiar with the common law riparian doctrine of eastern states in which only those property owners whose land borders the watercourse have the right to use the water.

The infeasibility of adopting a water law analogy to secure solar access has been handily summarized:

> . . . [P]roperty owners may have to build additions to their structures prematurely if their neighbors hint they may install solar equipment. Substantial conflict with land use planning goals is possible. Furthermore, no compensation would be paid for lost development rights. This would be particularly unfair in zones that allow highrise development where airspace is extremely valuable.[91]

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88. *Windfalls For Wipeouts: Land Value Capture and Compensation: An Executive Summary*, U.S. DEPT. OF HOUSING AND URBAN DEVELOPMENT 19.

89. *See* Proceedings of the American Bar Foundation Workshop on Solar Energy and the Law, Interim Report to the National Science Foundation, at 20 (Chicago: American Bar Foundation, 1975). *See also Solar Access, supra* note 2, at 9.

90. Comment, *The Allocation of Sunlight: Solar Rights and the Prior Appropriation Doctrine*, 47 U. OF COLORADO L. REV. 421 (1976).

91. *Solar Access, supra* note 2, at 18.

> . . . [A] simpler, more certain, and more equitable approach is necessary. Stretching water law to cover solar access issues may dampen enthusiasms for this new technology.[92]

However, one jurisdiction, New Mexico, has adopted a sunrights law based on a prior appropriation approach.[93] In conflicts over solar access, the solar user would be entitled to the sunlight available at the time of his appropriating use.

V. Solar Legislation in Virginia

To date, in response to solar energy issues, the Virginia legislature has enacted three pieces of solar energy legislation. The first provides for the establishment of the Virginia Solar Energy Center as a part of the Virginia Energy Office.[94] The Center's primary purpose is to serve as a clearinghouse for the gathering and dissemination of solar energy information.

The second enactment provides the way for certain tax incentives to solar system users.[95] Under this act solar energy equipment is classified separately from other forms of real and personal property and local governments are authorized to exempt solar devices from local taxation.[96]

The final enactment, passed in 1978—the Virginia Solar Easements Act, provides for the creation and recordation of solar access easements.[97] It is this last enactment that will be discussed in this section.

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92. *Solar Access, supra* note 2, at 19.

93. New Mexico Stat. Ann. §§ 47-3-3 & 47-3-4 (1978).

94. Va. Code Ann. § 10-214 (Repl. Vol. 1978). This Act, passed in 1977, repealed § 9-65.2:1 of the Virginia Code which created the Virginia Solar Energy Center as part of the Science Museum of Virginia. Under § 9-65.2:1 the Center was to provide planning, coordination, and to stimulate research and development of solar energy, to develop public educational programs on solar energy for use in public schools, and to provide assistance in formulating solar energy utilization policies in the interest of the Commonwealth.

95. Va. Code Ann. § 58-16.4 (Cum. Supp. 1978). This act serves as an enabling act for local governments to exempt from property taxes solar energy equipment.

96. The Act is not mandatory upon local governments; by ordinance, localities may voluntarily choose to exempt or partially exempt classified property. *Id.*

97. Va. Code Ann. §§ 55-352 to 55-354 (Cum. Supp. 1978).

A. *Provisions of the Act*

The act provides solar users in Virginia with two important benefits. First, by providing unequivocally for the recognition of easements for the purpose of solar access to solar collecting devices, it removes any uncertainties of the validity of solar access easements created by the common law real property concepts of easements for light and air. Secondly, it provides for the exact dimensions, expressed in vertical and horizontal angles, of the solar access easement.[98] This alleviates further uncertainties of the parties to the easement agreement. The parties can know exactly what is being conveyed. A solar user's neighbor is likely to be quite hesitant to convey what he fears to be all the airspace above his property; if the neighbor does agree, the expense of the purchase may be prohibitive—often approaching the value of the fee. With the knowledge of the exact corridor of skyspace being conveyed, the greater the possibility of the easement grantor to agree. The easement may not interfere at all with any future development plans of the grantor or if it should, by knowing exact dimensions of the solar corridor, modified structure plans can be drafted to still accomplish his objective.

Although most authorities conclude that the mathematics of figuring a solar access easement of Virginia's nature is quite simple, to the uninitiated it can be quite confusing. Since the objective of any solar access easement is to guarantee the unobstructed flow of sunlight to the solar collector, the area of skyspace above the grantor's property in which a tree or building may not intrude so as to block the sunlight to the grantee's collector is defined in terms expressing the position of the sun relative to the collector. The grantor (solar user's neighbor) then conveys a negative easement in the skyspace above his property assuring that the grantor will not create any obstruction in this defined area. It is important as well that the growth of vegetation does not infringe in the solar easement area. The solar system owner (grantee) should at least be given the right to trim any vegetation which trespasses the area of the easement.

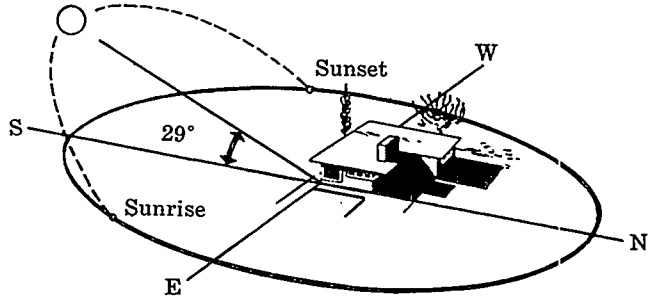
The height of the sun above the horizon (vertical angle as called in the Act) is customarily termed the altitude.[99] A solar easement

98. *Id.*

99. The following diagrams illustrate the altitude for Richmond, Virginia on December 21 (the day of the year having the lowest altitude) and June 21 (the day of highest altitude).

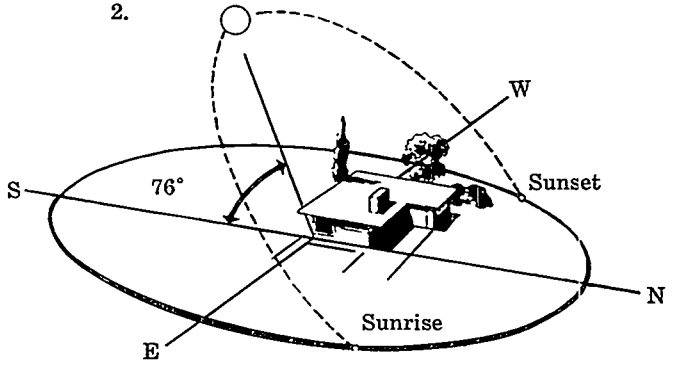
altitude is determined by measuring the angle of the sun's position relative to a line parallel with the base of the solar collector rather than the horizon. Azimuth (horizontal angle in the Act) defines the east to west orientation of the sun throughout the day.[100] By using these angles of altitude and azimuth, the dimensions of the solar

1.



WINTER ALTITUDE

2.



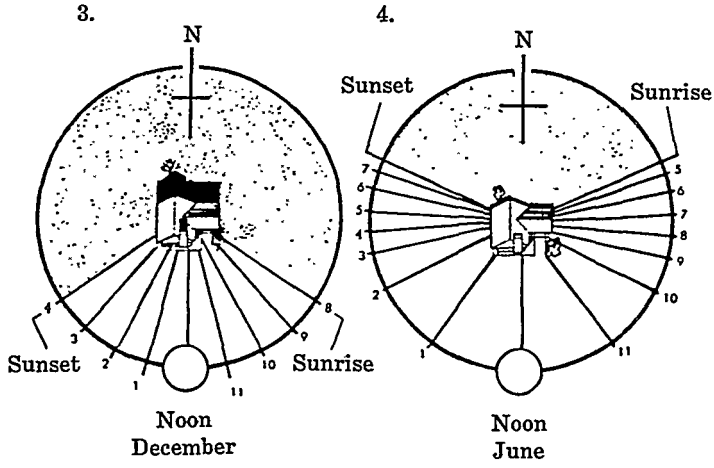
SUMMER ALTITUDE

See U. S. Dept. of Energy, Fundamentals of Solar Heating (January 1978) at 2-4.

100. The following diagram illustrates the additional hours of daylight in summer than in winter.

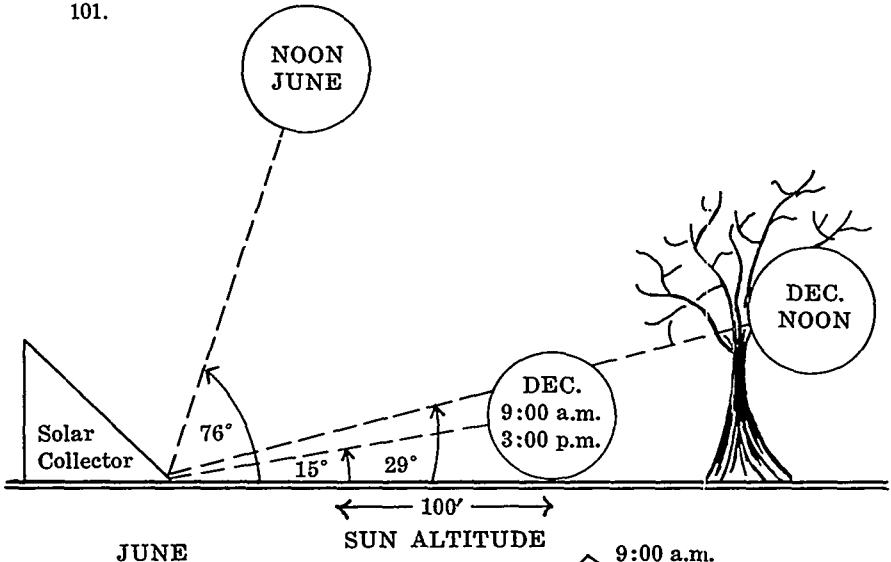
access easement—the solar corridor which the sunlight must pass through—can be described.[101]

Prior to the drafting of these angles in a solar access easement, several factors must be considered by the solar system user. Due to

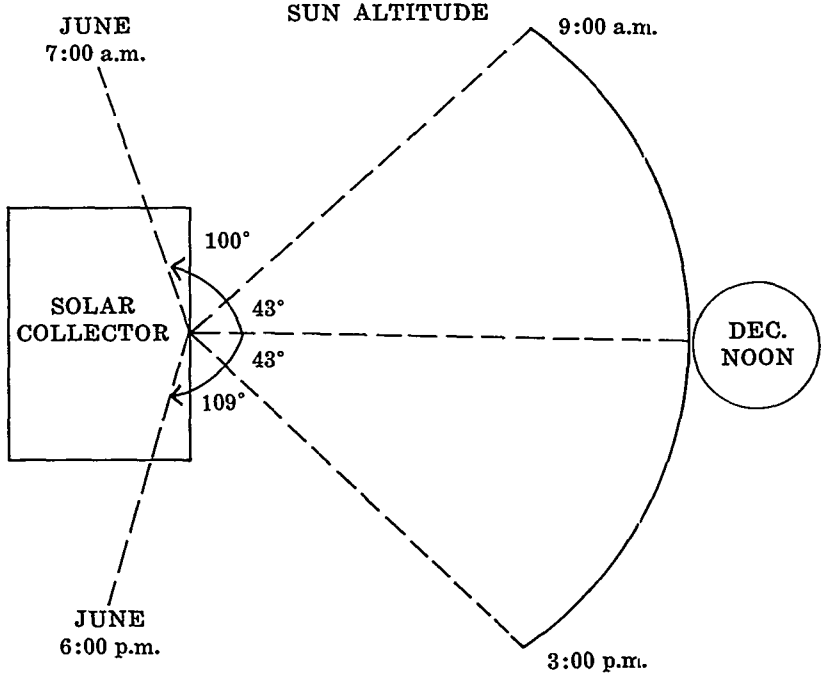


Id. at 2-5.

101.



SUN ALTITUDE



SUN AZIMUTH

the seasonal changes the angles of altitude[102] and azimuth[103] experience both monthly and hourly variation. The altitude of the summer sun is much greater than that of the winter sun. The altitude of the sun also is affected by latitude of the solar system user's property—the distance north of the equator.[104] The farther north the lower the winter sun appears in the sky.

The greater altitude of the summer sun also results in many more daylight hours in the days of the summer season than those of the winter season.[105] Further, the sun rises much south of true east and sets much south of true west in the winter months, whereas conversely, it rises north of east and sets north of west in the summer months.[106] The result is that the potentiality of a height obstruction located due south of the collector is reduced in the summer months while the increased daylight hours and low northerly position of the sun on rising and setting make obstruction more probable by property neighbors east and west of the solar system user's property.[107]

From the above it is obvious that the determination of the altitide and azimuth angles to be drafted into the solar easement directly depend on the purpose, location and type of the solar equipment. If

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102. *See* diagrams note 99 *supra.*

103. *See* diagrams note 100 *supra.*

104. *See* U. S. Dept. of Energy, Fundamentals of Solar Heating (January 1978) at 2-3 to 2-4.

105. *See* diagram No. 2 note 99 *supra.*

106. *See* diagrams note 99 *supra.*

107. The following chart illustrates the position of the sun by both altitude and azimuth and the maximum permitted height of a structure located at a distance of 100 feet from the collector of a hypothetical solar heating and cooling system located in Richmond, Virginia. Eastern Standard Time should always be used in determining the sun's position rather than Daylight Savings Time to avoid shifting the peak periods of sunlight.

Month	Time (EST)	Sun Altitude	Sun Azimuth	Height of Sun at 100' distance
Dec.	Noon	29°	0°	56'
Dec.	9:00 a.m. 3:00 p.m.	15°	43°	27'
June	Noon	76°	0°	401'
June	7:00 a.m.	26°	100°	50'
June	6:00 p.m.	14°	109°	26'

See also the diagrams in note 101 *supra.*

the purpose of the solar unit is to provide winter heating, only then does the primary concern become the low altitude of the winter sun over a reduced azimuth path. The widened arch of the sun's azimuth to the east and west during the summer months would be of no use and is consequently unimportant. The converse is true if the unit is to provide only summer cooling. Should the unit be designed to provide hot water throughout the entire year, or to provide both heating and cooling, both summer and winter positions must be considered.[108]

By increasing the height of the placement of the solar collecting equipment—choosing a rooftop collector rather than a ground placement—the problem of low sun altitude is decreased. This not only permits higher obstructions nearer the collector but also may provide the needed access should a natural obstruction or manmade improvement already exist to the south of the solar system user's property.[109]

Also, if the primary purpose of the solar system is summer air conditioning, the collector might be oriented (collector face points) southeast rather than true south thereby advancing the peak collecting hour so that the solar unit is able to meet the peak demand for cooling in the afternoon.[110] The opposite is true if the unit's design is for winter heating. A southwest orientation delays the peak collecting period enabling the system to store energy needed for the cooler nighttime temperatures. If the solar unit's function is the heating of a commercial or office building then the cooling during after business hours may be of little concern. The selective orientation of the solar collector may also avoid the problem of existing structures which would shade the collector for part of the collecting hours if a true south orientation were adopted. As the use of solar energy systems continues to expand, the more expensive sun tracking collectors should become more common. This unit tracks the sun in its path throughout the altitude and azimuth changes during the day enabling the maximum collection of the sun rays.

108. The data presented in note 107 *supra* would be considered and the minimum sunlight hours needed for the efficient operation throughout the year in order to ascertain the required angles defining the solar access easement.

109. *See* note 107 *supra.*

110. Conversation with Richard P. Hankins, Jr., March 22, 1979.

It also should be noted that all obstructions in the solar path need not be prohibited. The obstruction may be acceptable dependent upon the time and area of solar collector shaded and the purpose of the solar system.[111] The presence of deciduous trees is a common example.

B. *Drafting Considerations*

The lesson for the lawyer is obvious. He should no more attempt to draft the solar access easement without the cooperation of the solar system designer or engineer than he should draft a metes and bounds description in a deed without a valid survey. Only by the consideration of the function and design of the solar system can the proper solar access corridor be defined in the easement.

It is important to know as well what the act does not do. The act does not provide for solar access or even mandate that solar access be given the proposed solar user. The Act provides only for the recognition of easements voluntarily entered into between the parties. The solar user is left to his negotiating and persuasive abilities.

Second, due to the language of the statute, it appears that it may hold a trap for the unwary draftor of solar access rights:

> Any instrument creating a solar easement shall include . . .
> 1. The vertical and horizontal angles, expressed in degrees, at which the solar easement extends over the real property subject to the solar easement.[112]

The draftor who fails to comply with the mandate of the act may find his easement invalid, despite the actual intention of the parties to provide for access. It is also critical that the mathematics involved in describing the angles be correct or else the easement holder may find he owns access through skyspace he does not need while denied by his neighbor that access actually needed. This situation can have particularly harsh consequences for the solar user because of the refusal of courts to recognize easements for light and air by prescription. The solar user would acquire no right from his actual use over the area of the skyspace he needs—having only a

111. *Id.*
112. VA. CODE ANN. § 55-354 (Cum. Supp. 1978).

right to the area erroneously described, if the court could not be convinced that the mistake entitles him to equitable relief.[113] Also, any change in solar collector placement or modification may require renegotiation of the easement.

Since easements for solar access are to operate with the same status as the more traditional or familiar easements at common law, other important considerations should be addressed. It is crucial that the solar easement be drafted as appurtenant to the solar user's land, thus enabling the solar access easement across the servient (burdened) tenement to pass to successive owners of the dominant (benefited) tenement—or simply that it run with the land.[114] If the easement is conveyed in gross, it is a personal right of the owner and as such would not be transferred with title to the tract upon which the solar system is located. Since easements in gross are inalienable at common law, the easement could not be transferred thus necessitating a renegotiation between the new title holder and the neighbor whose land the sunlight must traverse.

The parties' agreement must be in writing to satisfy the Statute of Frauds and recorded promptly so that the solar user experiences no difficulty with the successor in title to the servient estate.[115] Unless the parties specify a termination date, the easement will run in perpetuity and will bind subsequent owners of either tract of land.[116]

The use of express easements to guarantee solar access does have some distinct advantages over other methods of securing access.[117] Most individuals are familiar with the easement concept. Easements are simple to implement without governmental red tape. The concept can be applied in established neighborhoods as well as new developments. Most importantly, it provides the solar user with a guarantee of solar access prior to installation of equipment. Easements afford more protection to the solar user than zoning laws which are subject to change and they are readily enforced by injunction.

113. *See* Lindsey v. Clark, 193 Va. 522, 69 S.E.2d 342 (1952).

114. *See generally* H. TIFFANY, THE LAW OF REAL PROPERTY § 394 (3rd ed. 1970).

115. *Id.* at § 406.

116. *See generally* J. CRIBBET, PRINCIPLES OF REAL PROPERTY § 345 (2d ed 1975).

117. *See generally* National Solar Heating and Cooling Information Center, Solar Access and Land Use, State of the Law (1977).

It must be recognized, however, that several limits to the usefulness of express solar access easements exist.[118] Their creation is voluntary and the expense of their purchase may be prohibitive. The owner, who has no intention of developing his property so as to shade his neighbor's solar collector, may gain an undeserved windfall. The fear exists that "friendly" neighbors will not go to the trouble to draft or draft properly the legal document, thereby assuring litigation upon sale of one of the parcels.

Most importantly, it may require the solar user to purchase easements from several property owners as the construction of a tall structure a few lots away would reduce the value of the easements in adjacent lands to zero. The Empire State Building in New York City, for example, casts a shadow of over seven acres at certain times during the day.[119]

Express easements place the entire cost of solar energy on the solar user. Some authorities have suggested that public policy requires that the cost be shared since more than just the solar user benefits from increased solar energy use.[120]

VI. CONCLUSION

The passage of the Virginia Solar Easements Act was a significant initial step toward the resolution of the problem of guaranteed solar access to the solar system user in Virginia. It must, however, be recognized for what it is—a first step. The application of solar easements cannot be expected to provide, nor should it be solely relied upon to provide, the solution to the problems of solar access if solar energy is to receive widespread acceptance as a genuine energy source.

As citizens become more familiar with solar technology, solar technology advances, and the energy crunch becomes more severe, the initial skepticism of solar energy will be overcome. To meet this anticipated use of a variety of solar systems in a wide variety of neighborhoods will require the consolidated effort of all levels of

118. *Id.* at 10-11.

119. Comment, *Securing Solar Rights: Easements, Nuisance, or Zoning?*, 3 COLUM. J. OF ENVT'L. L. 112, 141 (1976); Myers, *Solar Access Rights in Residential Developments*, 24 THE PRACTICAL LAWYER 13, 17 (March 1, 1978).

120. *See* note 117 *supra*, at 11.

government. State and local governments should take the leading role because of the nature of the solar access problem. Public controls must supplement the private agreements among individuals currently provided under the Act. Some states have made substantial beginnings toward meeting this task. Oregon, for example, provides that comprehensive land use planning techniques be applied and that solar access be considered by land use decision makers.[121] Other states have passed enabling legislation authorizing local government to consider solar access in zoning and planning methods.[122] Still other states, importantly, have provided for the study of solar energy problems.[123] The data gained will be of much value to planning and zoning boards in their decision making process. Some localities have mandated that solar energy must be considered in the construction of new homes.[124]

Solar zoning, the establishment of solar districts or the application of the transferable development rights concepts should be undertaken only with the satisfaction that the negative considerations, such as increased transportation costs, urban sprawl, and the cutting of trees which provide summer shading benefits, are minimal. Virginia should seek to avoid the mistakes of other localities by a careful study of their practices and by capitalizing on their collective knowledge. Solar research and technology should be further encouraged and supported. Virginia should begin now. The methods of solar access guarantee should be ready to meet the forthcoming advances in technology. Caution, however, must be exercised not to pass hasty legislation that quickly becomes outdated and which results in negative overall energy saving. These two concerns can be compatibly addressed only by advance planning.

121. *See* National Solar Heating and Cooling Information Center, *State Solar Legislation* (January 1978) (a summary of current solar legislation throughout the states which is periodically updated).

122. *Id.*

123. *Id.*

124. *Id.*