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NEWS & ANALYSIS

Breathing Easy: Improving Indoor Air Quality Through Green Building as Public Policy

by Scott J. Anchin

Editors' Summary: Poor indoor air quality is a significant, growing concern for office workers. Indoor air quality-related illnesses like sick building syndrome impose a variety of personal, economic, and legal costs on both workers and employers. In this Article, Scott Anchin argues that green building in accordance with the U.S. Green Building Council's Leadership in Energy and Environmental Design standards has the potential to significantly reduce instances of indoor air quality-related illnesses, resulting in healthier and happier workers, higher productivity, and considerable long-term cost savings. Whether green building will improve indoor air quality depends largely on the support of state and local governments, and to a lesser degree, the federal government and nonprofit organizations. Anchin argues that these organizations should use financial incentives, legislative reform, and education for developers and the public to help green building achieve this goal.

I. Introduction

Each morning, millions of workers in the United States travel to large office buildings where they will spend considerable portions of their days. Over time, many workers will experience a variety of unexplained ailments, including skin problems, trouble with breathing, muscular and joint pain, and neurological problems such as fatigue and headaches.¹ When these workers leave for the day, their problems will diminish or disappear entirely.² These office workers may be suffering from an air quality-related illness such as sick building syndrome (SBS), an ill-defined ailment that lacks both a defined set of symptoms and a clear source. The World Health Organization (WHO) first recognized SBS in 1982, but it has been recognized as a threat to the health and well-being of office workers since the 1970s.³ In 1984, the WHO estimated that up to 30% of new and remodeled

buildings may suffer from poor indoor air quality that can cause SBS.⁴

Office workers need not accept the scourge of indoor air quality-related illnesses like SBS. Along with the revelation that poor indoor air quality is the primary cause of a variety of ailments, so-called green building has become increasingly commonplace.⁵ The green building trend has been driven by the U.S. Green Building Council's (USGBC's) Leadership in Energy and Environmental Design (LEED) standards. LEED "is a voluntary, consensus-based national standard for developing high-performance, sustainable buildings."⁶ LEED-certified buildings have measurably improved indoor air quality when compared to their noncertified counterparts.⁷

It is essential for policymakers to consider developing and implementing a comprehensive strategy for improving indoor air quality through green building in accordance with the LEED standards. This Article argues that such a policy must include financial incentives, legislative reform, and education at the federal, state, and local levels. Nonprofit or-

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1. UNISON, HEALTH & SAFETY INFORMATION SHEET: SICK BUILDING SYNDROME I (2004), available at <http://www.unison.org.uk/acrobat/B181.pdf>.
2. *Id.*
3. Ohio State University, Joe E. Heimlich, *Fact Sheet: Sick Building Syndrome*, <http://ohioline.osu.edu/cd-fact/0194.html> (last visited Apr. 24, 2006) [hereinafter OSU Factsheet].

4. U.S. Environmental Protection Agency (EPA), *Indoor Air Facts No. 4 (Revised): Sick Building Syndrome (SBS)*, <http://www.epa.gov/iaq/pubs/sbs.html>.

5. See, e.g., *Interest in Green Practices Growing Strongly*, GRAND RAPIDS BUS. J., Feb. 23, 2004, at B6; Jim Johnson, *Survey Shows Green Buildings Will Rise*, WASTE NEWS, Sept. 27, 2004, <http://www.usgbc.org/News/USGBCInTheNewsDetails.aspx?ID=1114>.

6. USGBC, *LEED: Leadership in Energy and Environmental Design*, <http://www.usgbc.org/DisplayPage.aspx?CategoryID=19> (last visited Mar. 10, 2006).

7. See *infra* discussion Part III.B.

ganizations should also play a role by disbursing financial incentives, advocating for legislative reform, and disseminating information to developers and the public. The Article first discusses the problem of poor indoor air quality and SBS, with an emphasis on the associated legal concerns. Next, the Article examines green building as a solution. Finally, the Article looks at the constituent elements of a policy aimed at improving indoor air quality by encouraging green building in accordance with LEED standards.

II. The Problem: Poor Indoor Air Quality

One of the first documented cases of an indoor air quality-related illness occurred in 1863, when workers at the Ohio State Capitol building were sickened by an unknown illness dubbed “statehouse malaria.”⁸ Since that time, cases of indoor air quality-related illnesses such as SBS have become increasingly common. People spend up to 90% of their time indoors, where the level of contamination inside is often higher than it is outside.⁹ So it is not surprising that up to 40% of all illnesses are the result of the buildings where people live and work.¹⁰ Despite its commonality, SBS remains ill-defined beyond its roots in poor indoor air quality. The cost of poor indoor air quality in terms of human health and economic cost is considerable. Compounding the problem, poor indoor air quality has spawned a variety of lawsuits. Indeed, poor indoor air quality is a serious problem that merits an urgent search for a solution.

A. Indoor Air Quality and SBS

Illness related to poor indoor air quality is a relatively new phenomenon. In the past, buildings were not airtight; indoor air and outdoor air were intermixed.¹¹ Progressive advances in building technology allowed buildings to be sealed off from the outside world, resulting in recirculated air filled with pollutants from the buildings’ inhabitants and its constituent materials and objects.¹² The proliferation of sealed buildings was spurred on by the considerable increase of fuel prices in the 1970s,¹³ which helped trigger the installation of ventilation systems that circulate only small amounts of air to improve energy efficiency.¹⁴ The sealed buildings of the modern era have caused a variety of symptoms to appear in their inhabitants. These symptoms are manifested as either a “building-related illness” or “sick building syndrome.”¹⁵

Building-related illnesses are distinguishable from SBS. In cases of building-related illnesses, a definite factor causing a specific illness can be identified.¹⁶ Examples of definite factors that cause a building-related illness include psychological stress, a bacterial infection, and a building’s location on contaminated land.¹⁷ In contrast to building-related illnesses, SBS is ill-defined, having no definite identifiable cause and nonspecific symptoms.¹⁸

The WHO defines SBS as “an excess of work related irritations of the skin and mucous membranes and other symptoms, including headache, fatigue, and difficulty concentrating, reported by workers in modern office buildings.”¹⁹ Symptoms include: “(1) irritation of the eyes, nose, and throat, (2) dry mucous membranes and skin, (3) erythema, (4) mental fatigue and headache, (5) respiratory infections and cough, (6) hoarseness of voice and wheezing, (7) hypersensitivity reactions, and (8) nausea and dizziness.”²⁰ The symptoms generally fade or disappear completely when workers leave their offices.²¹ Similarly, there is no specific profile for a “sick building,” but the WHO identified several common risk factors, including: a building constructed in the 1960s or later; large areas of soft furnishing; a large amount of open shelving and filing; new furniture, carpeting, and painted surfaces; chemical pollutants such as tobacco smoke; and dust particles or fibers in the air.²²

The U.S. Environmental Protection Agency (EPA) identified four primary causes of illnesses related to poor indoor air quality: inadequate ventilation, biological contaminants, chemical contaminants from indoor sources, and chemical contaminants from outdoor sources.²³ Factors that may cause SBS but do not relate to indoor air quality include inadequate temperature or humidity and poor lighting.²⁴ Chemical contaminants from indoor sources may come from a variety of common items, including tobacco smoke and “adhesives, upholstery, carpeting, copy machines, manufactured wood products, and cleaning agents” that emit volatile organic compounds (VOCs).²⁵ Chemical contaminants from outdoor sources include vehicle and building exhaust.²⁶ Biological contaminants include “pollen, bacteria, viruses, and molds.”²⁷

Some researchers suggest that SBS is partly due to the perception of poor indoor air quality rather than to any measurable problem.²⁸ Because it is impossible to directly ob-

that context “sick school syndrome.” Kris Sherman, *Learning About Sick Schools: Dust and Mold Can Impede Students’ Performance*, NEWS TRIB., Feb. 28, 2002, at A1.

8. Gene J. Heady, *Stuck Inside These Four Walls: Recognition of Sick Building Syndrome Has Laid the Foundation to Raise Toxic Tort Litigation to New Heights*, 26 TEX. TECH L. REV. 1041, 1041 (1995).

9. Amy Speech Shires, *Breathing Room*, SYRACUSE U. MAG., Summer 2005, at 25, 26.

10. Charles J. Kibert, *Green Buildings: An Overview of Progress*, 19 J. LAND USE & ENVTL. L. 491, 495 (2004).

11. Doctor Fungus, *Sick Building Syndrome*, http://www.doctorfungus.org/mycoses/environ/sick_building.htm (last visited Mar. 10, 2006).

12. *Id.*

13. BUPA, *Sick Building Syndrome*, http://www.bupa.co.uk/health_information/html/healthy_living/workplace/sick_building.html (last visited Apr. 24, 2006); Environmental Health Center, *Sick Building Syndrome*, <http://www.nsc.org/ehc/indoor/sbs.htm> (last visited June 12, 2006).

14. Environmental Health Center, *supra* note 13.

15. Some individuals believe that poor indoor air quality in schools is an independent problem, labeling indoor air quality-related illnesses in

16. See generally Edward P. Horvath, *Building-Related Illness and Sick Building Syndrome: From the Specific to the Vague*, CLEV. CLINIC J. MED., June 1997, at 303.

17. UNISON, *supra* note 1, at 1.

18. See generally Horvath, *supra* note 16.

19. Heady, *supra* note 8, at 1054 (quoting WHO, INDOOR AIR POLLUTANTS: EXPOSURE AND HEALTH EFFECTS (1982)).

20. *Id.*

21. U.S. EPA, *supra* note 4.

22. UNISON, *supra* note 1, at 1.

23. U.S. EPA, *supra* note 4.

24. *Id.*

25. Environmental Health Center, *supra* note 13.

26. *Id.*

27. *Id.*

28. Alan Hedge, Professor, Cornell University, Addressing the Psychological Aspects of Indoor Air Quality, Presentation at the Asian In-

serve airborne pollutants or contaminants, workers “rely on beliefs and imagination to help . . . anticipate and avoid invisible hazards.”²⁹ Further, data about SBS complaints are generally gathered through self-administered questionnaires.³⁰ These questionnaires may be “biased, ambiguous, badly scaled, and poorly designed.”³¹ One double-blind study varied the levels of outdoor air supply in four office buildings to determine the effect of outdoor air on workers’ reports of SBS symptoms.³² The study concluded that “increases in the supply of outdoor air did not appear to affect workers’ perceptions of their office environment or their reporting of symptoms considered typical of the sick building syndrome.”³³ But even if the psychological elements of SBS play a role in the manifestation of physical symptoms, the symptoms that SBS sufferers display are detrimental to both their productivity and their personal well-being.

It is difficult for office workers and health care professionals to determine whether poor indoor air quality is the cause of an illness because SBS is associated with a variety of common symptoms and has no traceable cause. There are two primary indicators of SBS.³⁴ First, the symptoms are common among multiple building inhabitants.³⁵ Second, the symptoms occur when individuals are present in a building but are significantly diminished or even absent when the individuals leave the building.³⁶ In an effort to make the source of SBS more clear and improve the ability of health care workers to diagnose the cause of specific instances of SBS, researchers are dedicating a considerable amount of effort and funding “toward identifying and measuring indoor air contaminants, a process that includes tracking contaminants from their sources.”³⁷ In addition to tracking contaminants’ sources, researchers are exploring whether organic particles are more harmful than other particles and whether the size of the particle plays a role in illnesses related to poor indoor air quality.³⁸

Poor indoor air quality is an expensive problem. It is estimated that there is an average of 3% of worker productivity lost to indoor air quality problems.³⁹ Other estimates place the cost of lost worker productivity at \$10 billion to \$15 billion annually.⁴⁰ According to a report by the American Lung Association, the U.S. Department of Energy (DOE) estimates that improving indoor air quality to eliminate SBS

would result in an estimated annual productivity gain of \$30 billion to \$150 billion.⁴¹ Moreover, the medical costs associated with SBS may be as much as \$1 billion per year.⁴² The staggering personnel and economic costs that stem from poor indoor air quality should serve as an impetus to finding and implementing a solution.

B. Indoor Air Quality Litigation

The rise of indoor air quality-related illnesses has resulted in an increase in the number of indoor air quality-related lawsuits. For example, one website, InjuryBoard.com, urges individuals to see a doctor and contact an attorney if they are “experiencing health problems that [they] suspect may be caused by indoor air pollution.”⁴³ Personal injury attorneys frequently advertise SBS litigation as an area of specialty.⁴⁴ Further, juries tend to side with plaintiffs in lawsuits related to indoor air quality.⁴⁵ Targets of indoor air quality lawsuits include employers, building owners, individuals and organizations involved in building design and construction, real estate professionals, and insurance companies. Due to the nature of indoor air quality-related illnesses like SBS, the cause of a plaintiff’s injury may not be entirely clear and the plaintiff may wish to join virtually every party that was involved in the building’s ownership, design, construction, and operation as defendants.⁴⁶ Thus, indoor air quality-related lawsuits have the potential to be quite complex.

There are no statutes that provide a private cause of action for generalized indoor air quality-related claims.⁴⁷ Thus, lawsuits related to indoor air quality are generally premised on common-law theories.⁴⁸ Most often, plaintiffs bring causes of actions in tort (primarily negligence) or in contract.⁴⁹ However, emerging theories of indoor air quality liability include intentional tort, product liability, employment discrimination, and breach of warranty.⁵⁰

Plaintiffs tend to bring lawsuits based on a claim of negligence where indoor air quality is alleged to be the source of an injury. Plaintiffs may be found liable for negligence when

door Air Quality Seminar (Sept. 22-23, 1996), available at <http://ergo.human.cornell.edu/AirQuality/iaqslides96/ahpaper.html>.

29. *Id.*

30. *Id.*

31. *Id.*

32. Richard Menzies et al., *The Effect of Varying Levels of Outdoor-Air Supply on the Symptoms of Sick Building Syndrome*, 328 NEW ENG. J. MED. 821, 822 (1993).

33. *Id.* at 821.

34. OSU Factsheet, *supra* note 3.

35. *Id.*

36. *Id.*

37. Shires, *supra* note 9, at 27.

38. *Id.*

39. WHO EUROPEAN CENTRE FOR ENVIRONMENT AND HEALTH, STRATEGIC APPROACHES TO INDOOR AIR POLICY-MAKING 11 (1999).

40. Scott H. Phillips & J. Snowden Stanley Jr., Semmes, Bowen & Semmes, Indoor Air Quality: Is It an Issue for Architects?, Presentation at Maryland Society AIA 2001 Annual Meeting and Design Awards Program (Sept. 28, 2001), available at http://www.semmes.com/publications_archive/litigation/airquality.pdf.

41. AMERICAN LUNG ASSOCIATION, LUNG DISEASE DATA IN CULTURALLY DIVERSE COMMUNITIES: 2005, 160 (2005).

42. Phillips & Stanley Jr., *supra* note 40.

43. InjuryBoard.com, *Sick Building Syndrome Overview*, <http://www.injuryboard.com/view.cfm/Topic=129> (last visited Apr. 25, 2006). Injuryboard.com is funded by “a network of sponsoring law firms” and “provides the general public with easily accessible legal and medical material in an effort to help consumers better understand any injury or medical condition that has negatively impacted their lives.” Injuryboard.com, *About InjuryBoard.com*, <http://www.injuryboard.com/about.cfm>.

44. See, e.g., Personal-Injury.com, *Sick Building Syndrome as Prescribed by the EPA*, http://www.personal-injury.com/practice_areas/Sick_Building_Syndrome.asp (last visited June 12, 2006).

45. See Emily Wheeler, *Legal Implications of Mold Contamination of HVAC Systems*, HPAC ENGINEERING, May 2000, <http://www.hpac.com/member/archive/0005law.htm> (stating that SBS lawsuits are frequently decided in favor of plaintiffs).

46. Heady, *supra* note 8, at 1063.

47. Local Government Environmental Assistance Network, *Many Legal Theories Available to Indoor Air Quality Litigants*, <http://www.lgean.org/html/whatsnew.cfm?id=136> (last visited Apr. 25, 2006). Federal statutes exist that may be useful in indoor air quality-related litigation, but they do not allow recovery of money damages. *Id.*

48. *Id.*

49. Heady, *supra* note 8, at 1064.

50. Local Government Environmental Assistance Network, *supra* note 47.

they “fail[] to exercise the standard of care that a reasonably prudent person would have exercised in a similar situation.”⁵¹ *Call v. Prudential Insurance Co. of America*⁵² is considered the first major case litigated over indoor air quality.⁵³ In *Call*, six individuals and two companies brought an action against a building’s management company; architect; general contractor; heating, ventilation, and air-conditioning system; installers; floor builders; and insurer.⁵⁴ The plaintiffs claimed negligence in the use of building materials, failure to warn occupants of noxious fumes, failure to provide fresh air, failure to remedy reports of SBS, and failure to provide information about SBS.⁵⁵ Although the case settled out of court, it served as a catalyst for future indoor air quality-related claims.⁵⁶

Since *Call*, several key indoor air quality cases expanded the scope of those who may be held liable. *Mackey v. TKCC, Inc.*⁵⁷ established that landlords can be held liable for failing to remedy indoor air quality problems of which they are or should be aware.⁵⁸ *Cogan Kibler, Inc. v. Vito*⁵⁹ established that contractors can be held liable for indoor air quality problems.⁶⁰

A claim for breach of contract is also a viable avenue for plaintiffs to bring indoor air quality-related lawsuits. Long-term commercial leases are common in the context of commercial building development. A lease may be breached if the lessor “fail[s] to perform [their] promise, . . . repudiat[es] it, or . . . interfer[es] with another party’s performance.”⁶¹ Long-term commercial leases may include provisions that expressly allocate liability for indoor air quality problems.⁶² Similarly, leases may call for the lessor to indemnify the lessee from losses resulting from SBS.⁶³ A lessee may therefore seek to bring a breach of contract claim against a lessor who fails to perform in compliance with such lease provisions. Further, lessees and their attorneys are increasingly focusing due diligence inquiries on SBS.⁶⁴ Due diligence is “a prospective buyer’s or broker’s investigation and analy-

sis of . . . a piece of property.”⁶⁵ In the context of due diligence, prospective lessees may require lessors to disclose their knowledge of any environmental hazards that relate to the property.⁶⁶ Failure to comply may result in liability.⁶⁷

A fair amount of indoor air quality-related litigation centers on the interpretation of insurance contracts.⁶⁸ Insurers may seek to capitalize on the ill-defined nature of SBS by using ambiguous language in insurance contracts to avoid paying claims. Thus, courts are sometimes forced to interpret language in insurance contracts. For example, in *Donaldson v. Urban Land Interests, Inc.*,⁶⁹ two former employees of the state of Wisconsin public defender’s office alleged that they became ill as a result of inhaling polluted air.⁷⁰ The property manager’s insurer denied coverage, stating that a pollution exclusion clause in the policy prevented recovery.⁷¹ The insurer was granted summary judgment at the trial court level,⁷² and the decision was affirmed by the court of appeals.⁷³ The Supreme Court of Wisconsin, however, reversed, holding that the “insurance policies’ definition of ‘pollutant’ [was] ambiguous, and that [the property manager] could reasonably expect coverage from [the insurer] for personal injury claims arising from the inadequate ventilation of exhaled carbon dioxide.”⁷⁴ The impact of the *Donaldson* decision on insurers is debatable. Some believe that as a result of the ruling, insurance premiums will increase.⁷⁵ Others believe that the decision will have a minor effect on insurance companies, as the ruling was limited to “carbon dioxide exhaled in the breathing process.”⁷⁶

Plaintiffs are also bringing lawsuits based on causes of action not traditionally associated with indoor air quality. For example, in *Peaspanen v. Board of Education*,⁷⁷ the plaintiff brought an intentional tort action. When challenged, an appeals court allowed the plaintiff to proceed with her intentional tort claim on remand.⁷⁸ In *Martinez v. Ohio Department of Administrative Services*,⁷⁹ the plaintiff brought an employment discrimination claim against the Ohio Civil Rights Commission. After the plaintiff’s doctor expressed concern that Martinez was suffering from SBS and should be relocated, the plaintiff was told he would be relocated to a satellite office.⁸⁰ Because the plaintiff did not

51. BLACK’S LAW DICTIONARY 1061 (8th ed. 2004).

52. No. SWC 80813 (Cal. Super. Ct. 1990).

53. ALLAN CHEN & EDWARD L. VINE, A SCOPING STUDY ON THE COSTS OF INDOOR AIR QUALITY ILLNESSES: AN INSURANCE LOSS REDUCTION PERSPECTIVE 15 (1998).

54. *Id.*

55. *Id.*

56. *Id.* at 16.

57. 894 P.2d 1200 (Or. Ct. App. 1995).

58. *Id.* at 1204 (holding “[the] landlord could be liable under certain circumstances for the failure to remedy dangerous conditions that it should know about, as well as those it actually knows about”); see also Local Government Environmental Assistance Network, *supra* note 47.

59. 695 A.2d 191 (Md. 1997).

60. *Id.* at 198 (holding that the plaintiff could advance a negligence claim against the defendant without relying on *res ipsa loquitur*); see also Local Government Environmental Assistance Network, *supra* note 47.

61. BLACK’S LAW DICTIONARY, *supra* note 51, at 200.

62. See Heady, *supra* note 8, at 1065 (arguing that construction contracts should “expressly define the limits of liability for indoor air quality problems and allocate responsibility accordingly”).

63. *Id.*

64. Jennifer Burton, *Some Less-Traveled Areas of Due Diligence for Commercial Tenants and Their Counsel*, GP/SOLO LAW TRENDS & NEWS, Aug. 2004, <http://www.abanet.org/genpractice/newsletter/lawtrends/0501/realestate/duediligence.html>.

65. BLACK’S LAW DICTIONARY, *supra* note 51, at 488.

66. Burton, *supra* note 64.

67. See *id.*

68. See CHEN & VINE, *supra* note 53, at 1; see also Lisa G. Youngblood & Thomas K. Bick, *The Pollution Exclusion Saga Continues: Does It Apply to Indoor Releases?*, 28 ELR 10021 (Jan. 1998).

69. 211 Wis. 2d 224 (Wis. 1997).

70. *Id.* at 226. The employees claimed that as a result of poor ventilation, they became nauseous, had headaches, and had aggravated asthma due to carbon dioxide build up. Robert Mullins, *Sick Building Syndrome*, BUS. J., Aug. 1, 1997, <http://www.bizjournals.com/milwaukee/stories/1997/08/04/focus1.html>.

71. *Donaldson*, 211 Wis. 2d at 228.

72. *Id.*

73. *Id.*

74. *Id.* at 235.

75. Mullins, *supra* note 70.

76. *Id.*

77. 669 N.E.2d 284 (Ohio Ct. App. 1995).

78. See Local Government Environmental Assistance Network, *supra* note 47.

79. 693 N.E.2d 1152 (Ohio Ct. App. 1997).

80. *Id.*

want to commute to the satellite location on a daily basis, he claimed he was “forced to resign.”⁸¹ The employment discrimination claim ultimately failed, but it may be successful under different circumstances.⁸²

The success of plaintiffs in bringing negligence and contract claims, and the appearance of creative theories of indoor air quality liability, should alert lawmakers to the necessity of implementing a comprehensive policy aimed at improving indoor air quality. In fact, it is well recognized that maintaining good indoor air quality reduces the potential for liability for all parties involved with a building.⁸³

III. The Solution: Green Building

Buildings have a substantial impact on the environment: “in America, buildings account for 65% of electricity consumption, 36% of total energy use and 30% of greenhouse-gas emissions.”⁸⁴ Buildings have a similarly substantial impact on their inhabitants. Regrettably, a building suffering from poor indoor air quality frequently manifests its impact on its inhabitants as either a building-related illness or SBS. Some scholars suggest that there is an ethical responsibility to “ensure the well-being of building occupants.”⁸⁵ The green building movement, part of the larger goal of sustainable development, responds to these concerns and seeks to minimize the effect of a building on its environment and its inhabitants.⁸⁶

Building developers can implement a variety of measures in an effort to improve indoor air quality and minimize indoor air quality-related illnesses, including ensuring proper maintenance of heating, ventilation, and air-conditioning systems, implementing smoking restrictions, storing chemicals in well-ventilated areas, and maintaining comfortable temperatures and lighting arrangements.⁸⁷ However, the best way to eliminate indoor air quality-related illnesses is to ensure good indoor air quality from a building’s inception. It is difficult and costly to remedy a fundamentally flawed system that results in poor indoor air quality. Green building has the potential to significantly reduce instances of indoor air quality-related illnesses, resulting in healthier and happier workers, higher productivity, and considerable long-term cost savings.⁸⁸

A. *The Rise of Green Building*

Some of the first buildings designed to maximize indoor air quality were constructed over a century ago: London’s Crystal Palace, built in 1851, and Milan’s Galleria Vittorio Emanuele II, built in 1877, incorporated underground air-cooling chambers and roof ventilators into their design.⁸⁹ Such forward-thinking structures were the precursors to today’s green buildings. In the 1970s, environmental awareness increased with the first Earth Day and the oil crises connected with conflict in the Middle East.⁹⁰ At around the same time, the term “green” was first used to mean “a building or a product made out of natural, renewable or recycled materials, or a process that does not cause pollution.”⁹¹ As energy prices fell in the 1980s, the interest in environmental conservation of the 1970s soon dissipated.⁹² By the early 1990s, however, interest in environmental conservation exploded once again. President William J. Clinton announced plans to make the White House “green” in 1993.⁹³ In 1998, the Condé Nast Building at Times Square in New York was completed; it is considered “America’s first environmentally-friendly, large-scale green construction project.”⁹⁴ Today, concern about indoor air quality has a direct impact on the increasing appeal of green building.⁹⁵ In 2004, the market for green building was \$7 billion.⁹⁶ Moreover, green building principles are now a standard part of the curriculum at architecture schools.⁹⁷ In spite of this, some fear exists that the current interest in green building will mirror the short-lived environmental conservation movement of the 1970s.⁹⁸

Growing concern for buildings’ impact on both their environments and their inhabitants resulted in the development of standards that developers can use to plan buildings that are more environmentally friendly. In the United States, the USGBC,⁹⁹ a nonprofit organization headquartered in Washington, D.C., introduced the LEED standards, a “voluntary, consensus-based national standard for developing high-performance, sustainable buildings,” in the late 1990s.¹⁰⁰ In an effort to promote LEED, the USGBC recently applied to the American National Standards Institute

81. *Id.* at 1154-55.

82. *Id.* at 1159 (holding that the Ohio Civil Rights Commission made a reasonable accommodation because they complied with the recommendation of the plaintiff’s doctor); see also Local Government Environmental Assistance Network, *supra* note 47.

83. See, e.g., GreenerBuildings, *Interiors Backgrounder*, http://www.Greenbiz.com/sites/greenerbuildings/backgrounders_detail.cfm?UseKeyword=Interiors (last visited May 25, 2006).

84. *The Rise of the Green Building*, *ECONOMIST*, Dec. 2, 2004, at 82, 82 [hereinafter *Rise*].

85. Simon Guy & Graham Farmer, *Contested Construction: the Competing Logics of Green Buildings and Ethics*, in *ETHICS AND THE BUILT ENVIRONMENT* 73, 81 (Warwick Fox ed., 2000).

86. See generally *Rise*, *supra* note 84.

87. Environmental Health Center, *supra* note 13; see generally OFFICE OF AIR AND RADIATION, *BUILDING AIR QUALITY ACTION PLAN* (1998) (describing the steps necessary for creating an air quality action plan for a building).

88. See Andy Miller, *Sick Buildings/A Special Report: New Building Practices Can Clean Indoor Environments*, *ATLANTA J.-CONST.*, July 21, 2003, at A6.

89. *Rise*, *supra* note 84, at 82.

90. Kibert, *supra* note 10, at 497.

91. Lynette Evans, *Goodbye to Green, Hello to Sustainability*, *SAN FRANCISCO CHRON.*, Feb. 1, 2006, at 1WB.

92. Kibert, *supra* note 10, at 497.

93. Sandra Fleishman, *Is Green Building Budding?*, *WASH. POST*, Apr. 16, 2005, at F01.

94. Stephen T. Del Percio, *The Skyscraper, Green Design and the LEED Green Building Rating System: The Creation of Uniform Sustainable Standard for the 21st Century or the Perpetuation of an Architectural Fiction?*, 28 *ENVIRONS ENVTL. L. & POL’Y J.* 117, 119 (2004); see also FXFOWLE, *Condé Nast Building Environmental Features*, http://www.fxfole.com/greenimages/comm_4TS_green.jpg (last visited Apr. 25, 2006) (providing a graphical depiction of the Condé Nast Building’s environmental features).

95. Fleishman, *supra* note 93.

96. Jason Pulliam, *Green Buildings’ Popularity Rising*, *DAILY IOWAN*, Dec. 2, 2005, at A1.

97. Robin Pogrebin, *High-Rises That Have Low Impact on Nature*, *N.Y. TIMES*, Feb. 2, 2006, at E1.

98. Emily Chung, *Green Buildings Back in Fashion*, *TORONTO STAR*, Dec. 11, 2004, at H05.

99. Visit the USGBC’s website at <http://www.usgbc.org/> (last visited Apr. 25, 2006).

100. USGBC, *supra* note 6.

“to become an . . . accredited national standards developer for standards related to green building practices.”¹⁰¹ Today, there are over 50 USGBC chapters that “provide local green building resources, education and leadership opportunities” throughout the nation.¹⁰²

The LEED standards are structured as a rating system that assigns points for achievements in several major areas.¹⁰³ Points are awarded in the areas of sustainable sites (14 points), water efficiency (5 points), energy and atmosphere (17 points), materials and resources (13 points), innovation and design process (5 points), and most significant to curbing SBS, indoor environmental quality (15 points).¹⁰⁴ Buildings that amass a minimum of 26 points are eligible to become LEED certified.¹⁰⁵ The LEED standards also provide higher levels of distinction for projects that incorporate more significant green building features: silver certification requires 33 points; gold certification requires 39 points; and platinum certification requires 52 points.¹⁰⁶

Initiatives similar to the USGBC’s LEED standards are being developed worldwide. In Britain, the Building Research Establishment Environmental Assessment Method (BREEAM) standard was introduced in the 1990s.¹⁰⁷ China also announced a green building initiative.¹⁰⁸ The Canada Green Building Council recently followed suit and introduced green building standards in Canada.¹⁰⁹ On an international level, the United Nations (U.N.) Sustainable Building and Construction Initiative is presently seeking to “achieve worldwide adoption of sustainable building and construction practices.”¹¹⁰

B. Improving Indoor Air Quality Through LEED

The LEED standards for new construction and major renovations assign 15 possible points to indoor environmental quality, which encompasses indoor air quality.¹¹¹ As a prerequisite to certification, the design of a building must establish minimum indoor air quality performance in compliance with standards set by the American Society of Heating, Refrigeration, and Air-Conditioning Engineers (ASHRAE).¹¹² Another prerequisite is “minimiz[ing] exposure of building occupants, indoor surfaces, and ventilation air distribution systems to Environmental Tobacco Smoke”¹¹³ No points may be awarded for indoor environmental quality unless those two prerequisites are met.

Once the prerequisites are met, developers can earn one point for each of the following: (1) implementing outdoor air delivery monitoring; (2) increasing ventilation; (3) developing an indoor air quality management plan for construction; (4) developing an indoor air quality management plan for occupancy; (5) using low-emitting adhesives and sealants; (6) using low-emitting paints and coatings; (7) using low-emitting carpet systems; (8) using low-emitting composite wood and agrifiber products; (9) implementing indoor chemical and pollutant source control; (10) using user-controllable lighting systems; (11) using thermal comfort design; (12) using thermal comfort verification; (13) using user-controllable thermal comfort systems; (14) providing daylight for at least 75% of spaces; and (15) providing views for at least 90% of spaces.¹¹⁴

Green building in accordance with the LEED standards has resulted in distinct, observed health benefits to workers due to improved indoor air quality. For example, aerospace firm Lockheed Martin constructed a green facility for 2,500 workers.¹¹⁵ Employee absenteeism, one of the primary consequences of indoor air quality-related illnesses, fell by 15% in the new facility.¹¹⁶ Employees that worked for VeriFone at a building retrofitted specifically to improve indoor air quality improved productivity by 5%; absenteeism fell by 40%.¹¹⁷ Voluntary terminations at the PNC Realty Services’ LEED silver certified facility fell by 83% and 57% in two business units, along with a decrease in absenteeism and a rise in productivity.¹¹⁸ At Genzyme, a biotech company in Cambridge, Massachusetts, 58% of workers indicated that they were more productive in a new building designed to provide improved indoor air quality.¹¹⁹ Studies confirm that

101. Steve Joyce, *U.S. Green Building Council Files for ANSI Accreditation*, BUILDINGONLINE EUPDATE, Aug. 11, 2005, <http://www.buildingonline.com/news/viewnews.pl?id=4357> (last visited Apr. 25, 2006); Press Release, USGBC, U.S. Green Building Council Files for ANSI Accreditation (Aug. 9, 2005), <http://www.usgbc.org/News/PressReleaseArchiveDetails.aspx?ID=1767>.
102. USGBC, *Chapters*, <http://www.usgbc.org/Chapters/ChapterList.aspx?CMSPageID=190&CategoryID=24&> (last visited May 25, 2006).
103. USGBC, LEED-NC: GREEN BUILDING RATING SYSTEM FOR NEW CONSTRUCTIONS & MAJOR RENOVATIONS 4 (2005) [hereinafter LEED STANDARDS].
104. *Id.* at 9.
105. *Id.*
106. *Id.*
107. *Rise*, *supra* note 84; see also BREEAM’s website at <http://www.breeam.org/> (last visited Apr. 25, 2006). There is also a proposal to establish a U.K. Green Building Council that would be similar to the USGBC. See U.K. Green Building Council Watch, at <http://www.ukgbc.co.uk/> (last visited Apr. 25, 2006).
108. Jim Johnson, *The Greening of China: China to Launch Green Building Program*, WASTE NEWS, Nov. 22, 2004, <http://www.usgbc.org/News/USGBCInTheNewsDetails.aspx?ID=1253>.
109. *LEED Canada Rating System for Green Buildings Launched*, CANADA NEWswire, Dec. 1, 2004, <http://www.newswire.ca/en/releases/archive/December2004/01/c9790.html>; see also Canada Green Building Council, <http://www.cagbc.org/> (last visited Apr. 25, 2006).
110. GreenBiz.com, *U.N. Environment Program Launches Green Building Initiative*, GREENERBUILDINGS, Feb. 24, 2006, http://www.greenerbuildings.com/news_detail.cfm?Page=1&NewsID=30459 (quoting Monique Barbut, director of the U.N. Environment Program’s Division of Technology, Industry, and Economics).

111. LEED STANDARDS, *supra* note 103, at 9. In addition to new construction and major renovation, LEED standards also exist for existing building operations, commercial interiors projects, core and shell projects, homes, and neighborhood development. USGBC, *supra* note 6. This Article focuses on the LEED standards for new construction and major renovations because they are most relevant to the design and construction of large office buildings.
112. *Id.* at 59. The standards set forth by the ASHRAE stipulate ventilation levels for acceptable indoor air quality. *Id.*
113. *Id.* at 60.
114. *Id.* at 9.
115. *Rise*, *supra* note 84.
116. *Id.*
117. GREG KATS, THE COSTS AND FINANCIAL BENEFITS OF GREEN BUILDING: A REPORT TO CALIFORNIA’S SUSTAINABLE BUILDING TASK FORCE 56 (2003).
118. *Id.*
119. Diane E. Lewis, *Firms Taking “Green” Path in Workplace: Better Environments Bolster Productivity*, BOSTON GLOBE, Jan. 16, 2006, at E1.

other organizations that construct facilities in accordance with the LEED standards to improve indoor air quality can expect similar benefits. One study estimated that productivity gains of at least 1.5% are possible in buildings with improved indoor air quality.¹²⁰ Another study conducted by the Massachusetts Technology Collaborative indicated that productivity could increase 7.1% annually by improving indoor air quality and the indoor environment.¹²¹

C. Criticisms of LEED and Green Building Roadblocks

Despite the measurably positive impact the LEED standards have on indoor air quality, some criticism exists. In fact, it was suggested that “it may be that LEED is terminally ill, that euthanasia should be considered so that it can be replaced with a more effective program.”¹²² One concern is that developers are so preoccupied with amassing LEED rating points to attain a high level of certification that they add features regardless of their green value.¹²³ The drive for points can turn the LEED standards into a game, resulting in “LEED brain,” which occurs when “potential PR benefits of certification begin driving the design process.”¹²⁴

Some argue that the LEED-specific environmental benefits touted by the USGBC are illusory. Critics contend that developers can earn the requisite number of points by simply following local building codes and meeting the efficiency standards of the ASHRAE.¹²⁵ Similarly, because all of the points are weighted equally, developers can attain LEED certification while completely sidestepping entire areas of the LEED standards, e.g., indoor environmental quality.¹²⁶ Another consequence of equally weighted points is that point gains bear little relation to actual expenditures. A survey respondent stated, “in a recent building, we received one point for spending an extra \$1.3 million for a heat-recovery system that will save about \$500,000 in energy costs per year. We also got one point for installing a \$395 bicycle rack.”¹²⁷

It may be that the structure of the USGBC is to blame for some of the criticism of the LEED standards. Some argue that the consensus-based nature of the LEED standards led to a system based more on compromise than scientific standards.¹²⁸ Similarly, the “crippling bureaucracy” connected with the certification process may make the LEED standards unattractive to some developers.¹²⁹ At the beginning of the learning curve, documenting a LEED project for certification may take 400 hours.¹³⁰ Even after development of

subsequent LEED projects, documentation may take 20 to 40 pre-construction hours and 20 to 30 post-construction hours to prepare the final documents for submission.¹³¹ Some developers cannot justify adding the staff necessary to effectively document the process.¹³²

Separate from the criticisms of the LEED standards, many developers are hesitant to build green in any form due to perceived high costs.¹³³ Some studies show that green building costs more than building a standard building, while others indicate that it actually costs less.¹³⁴ One expert put the added cost at between 1 to 3%.¹³⁵ Another expert estimated the added cost of green building at 5%.¹³⁶ In addition, would-be green builders interested in complying with the LEED standards face registration fees of \$750 to \$3,750, certification fees of \$1,500 to \$7,500, and costs associated with energy modeling.¹³⁷ Nevertheless, the long-term cost savings provided by green buildings can be far greater than the added upfront costs. Savings may amount to 25 to 35% in terms of water, heat, and electricity usage.¹³⁸ In a building recently renovated in compliance with LEED standards, Stetson University estimated that it saves \$15,000 to \$20,000 per month on energy bills.¹³⁹ A report to California’s Sustainable Building Task Force report indicated that green buildings can save between \$50 and \$75 per square foot over 20 years.¹⁴⁰

A variety of other factors play a role in limiting the widespread adoption of green building. Building codes may limit the development of new green projects, as currently enacted codes sometimes act as barriers to the approval of green designs.¹⁴¹ Moreover, a lack of media attention and a small number of celebrity architects touting the benefits of green building may be responsible for keeping green building out of the public eye.¹⁴² Other barriers include a lack of incentives to building developers, limited availability of product

ENGINEERING NEWS-REC., Feb. 28, 2005, <http://enr.construction.com/features/buildings/archives/050228r2-1.asp>.

131. *Id.*

132. *Id.*

133. Alison Ryan, *Experts Disagree on Whether Green Construction Costs More*, DAILY J. COMMERCE, Oct. 11, 2005, <http://www.usgbc.org/News/USGBCInTheNewsDetails.aspx?ID=1958> (last visited May 25, 2006).

134. *Id.*

135. *Id.*

136. Deirdre Fulton, *From the Ground Up: Changing the Environmental Landscape, One Building at a Time*, BOSTON PHOENIX, Aug. 12, 2005, http://www.bostonphoenix.com/boston/news_features/other_stories/multi-page/documents/04892544.asp.

137. Bowen, *supra* note 125.

138. Fulton, *supra* note 136.

139. Tania Deluzuriaga, *It’s Not Easy—or Cheaper—Building Green; But Stetson University Is Saving More Than \$15,000 on Energy Costs in a Renovated Building*, ORLANDO SENTINEL, May 11, 2003, at K1.

140. Harvey Black, *Green Buildings Save Greenbacks*, UNITED PRESS INT’L, Apr. 8, 2004, <http://www.washtimes.com/upi-breaking/20040405-061148-9129r.htm>; see also KATS, *supra* note 117.

141. See generally DAVID EISENBERG ET AL., *BREAKING DOWN THE BARRIERS: CHALLENGES AND SOLUTIONS TO CODE APPROVAL OF GREEN BUILDING* (2002).

142. See Christopher Hawthorne, *The Case for a Green Aesthetic: Sustainability Needs Star Architects, Media Coverage, and a Few Great Buildings*, METROPOLIS, Oct. 2001, http://www.metropolismag.com/html/content_1001/grn/index.html.

120. KATS, *supra* note 117, at 66.

121. Lewis, *supra* note 119.

122. Auden Schendler & Randy Udall, *LEED Is Broken; Let’s Fix It*, GRIST MAG., Oct. 26, 2005, <http://www.grist.org/comments/soap-box/2005/10/26/leed/index1.html>.

123. *Id.*

124. *Id.*

125. Ted Smalley Bowen, *Constructive Criticism: LEED Green-Building Program Confronts Critics and Growing Pains*, GRIST MAG., Oct. 26, 2005, <http://www.grist.org/news/maindish/2005/10/26/leed/index.html>.

126. *Id.*

127. Schendler & Udall, *supra* note 122 (quoting a respondent to a Green Building Alliance Survey).

128. *Id.*

129. *Id.*

130. Joann Gonchar, *Rapidly Evolving Rating System Draws Applause and Criticism: Youthful LEED Is Already Showing Signs of Impact*,

information, and limited public knowledge concerning the advantages of green building.¹⁴³

The USGBC and other organizations are taking steps to respond to and remedy the criticisms of the LEED standards and eliminate the barriers to green building. For example, The Green Building Alliance in Pittsburgh, Pennsylvania, conducted a survey aimed at identifying the green building barriers that exist in the city.¹⁴⁴ The USGBC is actively working to improve the LEED standards and is considering ways to ensure that buildings remain compliant with the LEED standards after they are completed.¹⁴⁵ Looking toward the future, the USGBC, ASHRAE, and the Illuminating Engineering Society of North America (IESNA) are working together to develop a new green building standard that will become a prerequisite for LEED certification.¹⁴⁶ The standard, currently named Standard 189P, is being designed so that it can be easily incorporated into building codes.¹⁴⁷ Fortunately, Standard 189P will include performance standards for indoor environmental quality.¹⁴⁸

IV. Implementing Green Building as Policy

The success of green building as a vehicle to improve indoor air quality depends largely on its implementation as a policy supported by governments and nonprofit organizations. Some argue that green building and related environmental initiatives should be supported by the private sector and that market forces should dictate their level of adoption.¹⁴⁹ In the case of green building, a comprehensive government-supported policy is desirable for several reasons, including the necessity of financial incentives to offset the perceived and actual increased costs associated with green building, the importance of removing the barriers presented by building codes that are inconsistent and incompatible with green building, and the value of providing a universally accessible forum for educating developers and the public.

Development and implementation of a comprehensive policy aimed at improving indoor air quality through green building should take place primarily at the state and local levels. The federal government should play a smaller role, primarily focused on adopting green principles in its own internal operations. State, local, and federal policies should

center on financial incentives, legislative reform, and education. In addition, nonprofit organizations should play an integral part in advancing green building as providers of financial incentives, advocacy for legislative reform, and education for developers and the public.

The financial incentives, legislative reform, and education that would constitute a comprehensive green building policy aimed at improving indoor air quality should be based on the LEED standards. Despite criticisms of the LEED standards and the existence of competing standards,¹⁵⁰ the LEED standards provide the most favorable basis for implementing a policy. Foremost, indoor environmental quality is a significant component of the LEED standards, as it provides for the second highest number of points. From a more practical standpoint, governments and nonprofit organizations have already instituted a wide range of incentives, programs, and policies aimed at increasing adoption of the LEED standards.¹⁵¹ Moreover, architecture firms are investing in hiring LEED-accredited professionals.¹⁵² Developing and ensuring compliance with a new green building standard would be complex and costly and would introduce more confusion into the still-developing green building market. Development of a new standard would radically delay widespread adoption of green building and would cripple the efforts to improve indoor air quality that are beginning to produce appreciable results.

A. The Role of State and Local Governments

Indoor air quality regulation in the United States is currently administered primarily by state and local governments rather than by the federal government.¹⁵³ Development of green building policies, therefore, should remain in the hands of state and local governments. State and local governments bear the impact of development, create building codes, and can best assess local constituent needs and desires. Thus, state and local governments are best positioned to effectuate green building policies. The components of an effective state or local green building policy include financial incentives, legislative reform, and education for developers and the public. A good starting point for state and local governments interested in implementing a LEED-based green building policy is the USGBC's *State and Local*

143. Adam Davis, *Barriers to Building Green*, ARCHITECTURE WK., Aug. 22, 2001, at E1.1, E1.1-E1.2, available at http://www.architectureweek.com/2001/0822/environment_1-1.html.

144. Green Building Alliance, *Barriers to Green Development in Pittsburgh, PA*, <http://www.gbapgh.org/Surveys.asp> (last visited Apr. 25, 2006). Survey data was "utilized in [the Green Building Alliance's] core program areas of education, research and resources, and public policy." *Id.*

145. Bowen, *supra* note 125.

146. Press Release, USGBC, ASHRAE, USGBC, IESNA Partner on New Standard (Feb. 15, 2006), <http://www.usgbc.org/News/PressReleaseDetails.aspx?ID=2156>; see also USGBC, *Standards for the Design of High-Performance Green Buildings Except Low-Rise Residential Buildings Frequently Asked Questions*, https://www.usgbc.org/FileHandling/show_general_file.asp?DocumentID=1293 (last visited Apr. 26, 2006).

147. *Id.*

148. *Id.*

149. See Ted Roelofs, *Bush Official Tours "Green" Steelcase Site: Critic Questions President's Commitment to Alternative Energy*, GRAND RAPIDS PRESS, Feb. 25, 2006, at A3 (describing President George W. Bush's view that "the market—not government—is the path to energy efficiency").

150. See, e.g., National Association of Home Builders, *Green Building Media Fact Sheet*, <http://www.nahb.org/generic.aspx?sectionID=222&genericContentID=21478> (last visited Apr. 25, 2006) (referencing the National Association of Home Builders' Model Green Home Building Guidelines). Most relevant to indoor air quality, the Greenguard Environmental Institute offers a Greenguard Certification Program that sets out "performance based standards to define goods with low chemical and particle emissions for use indoors." Greenguard Environmental Institute, *Standards*, <http://www.greenguard.org/DesktopDefault.aspx?tabindex=3&tabid=16> (last visited Apr. 25, 2006).

151. See *infra* discussion Part IV.A.-C.

152. See USGBC, *Professional Accreditation*, <http://www.usgbc.org/DisplayPage.aspx?CMSPageID=69&> (last visited Apr. 25, 2006). LEED Professional Accreditation requires proficiency in LEED certification requirements and processes as demonstrated on a comprehensive exam. *Id.* Green building projects designed by accredited individuals earn one point toward certification. *Id.* There are now over 23,000 LEED Accredited Professionals. Press Release, USGBC, LEED Accredited Professionals Top 23,000 (Feb. 28, 2006), <http://www.usgbc.org/News/USGBCNewsDetails.aspx?ID=2175>.

153. WHO EUROPEAN CENTRE FOR ENVIRONMENT AND HEALTH, *supra* note 39, at 93.

Government Tool Kit.¹⁵⁴ Further, the State Environmental Resource Center offers several model acts that would be useful for governments beginning to implement green building programs.

1. Financial Incentives

State and local governments should provide financial incentives for green building.¹⁵⁵ A variety of state and local government programs are already in place that provide funding for projects built in accordance with the LEED standards.¹⁵⁶ The first such state-sponsored financial incentive was a tax credit initiative passed by New York in 2000 as part of the state budget; it became effective in 2001.¹⁵⁷ Legislation passed in 2005 extended the tax credits passed in 2000 and provides a total of \$25 million in additional tax credits to be awarded between 2005 and 2009.¹⁵⁸ The 2004 LEED Incentive Program in Seattle, Washington, provides at least \$15,000 to private-sector projects that commit to LEED certification, and at least \$20,000 for projects that commit to attaining LEED silver certification.¹⁵⁹ And Oregon offers tax credits to buildings that attain at least LEED silver certification.¹⁶⁰ Oregon's tax credits were successful in promoting green building by offsetting the perceived cost increases associated with green building.¹⁶¹ Governments interested in introducing tax incentives should consider the language proposed by the State Environmental Resource Center in their model Green Building Tax Credit Act.¹⁶²

A variety of other creative financial incentives have been developed at the state and local level. For example, an ordinance was proposed in Burbank, California, that would reduce building permit fees for developers that incorporate some of the LEED standards.¹⁶³ Depending on the level of incorporation, the fees would be reduced by 5 to 15%.¹⁶⁴ A proposed ordinance in Pasadena, California, would allow LEED-certified projects to receive rebates and incentives

from the Department of Water and Power.¹⁶⁵ In addition, qualifying affordable housing projects would receive a building fee rebate up to \$1,000.¹⁶⁶ State and local governments should introduce additional financial incentives to combat the perceived and actual costs associated with green building.

2. Legislative Reform

In addition to financial incentives, state and local governments should work to implement green building as policy through legislative reform.

Building codes are a prime target for legislative reform. Building codes ensure that structures are "safe, sanitary, and increasingly, convenient and efficient."¹⁶⁷ While building codes stem from concerns about structural safety, they also integrate performance standards in other areas.¹⁶⁸ Performance standards "permit the use of any material that is able to meet a performance standard."¹⁶⁹ The LEED standards specify a variety of performance standards for indoor air quality.¹⁷⁰ For example, limits are set for the amount of VOCs that can be present in adhesives and sealants used in a building's construction.¹⁷¹ Seattle, Washington, is considering adding elements of the LEED standards to its building code.¹⁷² In response to municipalities moving to incorporate the LEED standards into their building codes, the USGBC created a "Greening the Codes" initiative.¹⁷³ State and local governments should follow this trend and use the performance standards set out in the LEED standards as a starting point for revisions to building codes.

Building code reform may be accelerated by the development of a model indoor air quality code. Because building regulation is complex, many state and local governments rely on model building codes.¹⁷⁴ In the 1970s, model energy codes were developed and adopted by many states.¹⁷⁵ Many localities follow regional building codes, including the Uniform Building Code, the Southern Standard Building Code, and the Basic Building Code.¹⁷⁶ Specialty building codes also exist, including the National Electric Code, the National Plumbing Code, and the International Energy Conser-

154. See USGBC, STATE AND LOCAL GOVERNMENT TOOL KIT (2002), available at http://www.usgbc.org/Docs/Member_Resource_Docs/toolkit_statelocal.pdf. The State Environmental Resource Center also provides a listing of innovative state legislation that would be useful to state governments. See State Environmental Resource Center, *Innovative State Legislation*, <http://www.serconline.org/grBldg/stateactivity.html> (last visited Apr. 25, 2006).

155. See American Council for an Energy-Efficient Economy, *Opportunities for State Action: Green Buildings Tax Credit*, <http://www.aceee.org/energy/buildfs.pdf> (arguing that states should provide tax credits for green building).

156. The USGBC does not indicate which state or local programs provide financial incentives. Del Percio, *supra* note 94, at 122.

157. *Id.* at 131.

158. New York State Department of Environmental Conservation, *New York State Green Building Initiative*, <http://www.dec.state.ny.us/website/ppu/grmbldg/> (last visited Apr. 25, 2006).

159. CITY OF SEATTLE ET AL., 2004 LEED INCENTIVE PROGRAM, available at http://www.cityofseattle.net/light/conservesustainability/leed/cv5_lds04.pdf. The incentive cannot be applied to construction costs, only to so-called soft costs associated with planning and design. *Id.*

160. Ryan, *supra* note 133.

161. *Id.*

162. See State Environmental Resource Center, *Green Building Tax Credit Act*, <http://www.serconline.org/grBldg/taxcredit.html> (last visited Apr. 25, 2006).

163. Alex Dobuzinkis, *Green Building Incentives: Sensitive Developers Could Get Lower Fees*, DAILY NEWS OF L.A., Oct. 1, 2004, at N3.

164. *Id.*

165. Charles Cooper, *Pasadena Council Supports Green Building*, ARCADIA WKLY., Jan. 6, 2006, <http://www.egreenideas.com/news.php?view=355>.

166. *Id.*

167. Eric Damian Kelly, *Fair Housing, Good Housing or Expensive Housing: Are Building Codes Part of the Problem or Part of the Solution?*, 29 JOHN MARSHALL L. REV. 349, 350 (1996).

168. JULIAN CONRAD JUERGENSMEYER & THOMAS E. ROBERTS, LAND USE PLANNING AND DEVELOPMENT REGULATION LAW 303 (2003).

169. *Id.* Many building codes specifications that require certain materials to be used, rather than allowing any material to be used that meets a performance standard. *Id.*

170. See generally LEED STANDARDS, *supra* note 103.

171. *Id.* at 67. The LEED standards also specify VOC limits for paints and coatings, carpet systems, and composite wood and agrifiber products. *Id.* at 68-71.

172. Bowen, *supra* note 125.

173. *Id.*; see also USGBC, *Committees*, <http://www.usgbc.org/Aboutus/committees.asp?CMSPageID=132> (last visited Apr. 25, 2006).

174. Kelly, *supra* note 167, at 351.

175. Kibert, *supra* note 10, at 497.

176. JUERGENSMEYER & ROBERTS, *supra* note 168, at 305.

vation Code.¹⁷⁷ A model indoor air quality building code should be developed by incorporating the LEED standards for indoor environmental quality.

State governments are leading the push for green building by example. At least 12 states have programs in place that mandate or encourage use of the LEED standards in construction projects that are funded by the state government.¹⁷⁸ Green building requirements for state-funded projects were implemented by Maryland and New York in 2001, New Jersey in 2002, Maine in 2003, California in 2004, and eight other states in 2005.¹⁷⁹ Recently, a comprehensive energy bill was introduced in Hawaii that would require state buildings to attain LEED silver certification.¹⁸⁰ And legislation was proposed in Connecticut that would require new construction built with at least 25% state money and costing \$1 million to meet certain LEED standards.¹⁸¹ State governments that wish to implement similar standards may enact legislation based on the State Environmental Resource Center's model Green Building Standards Act.¹⁸² Many cities are following suit, encouraging or requiring green building for city-funded projects.¹⁸³ For example, the mayor of Boston, Massachusetts, announced in 2005 that the city would seek LEED platinum certification for all new municipal buildings.¹⁸⁴ The Green City Buildings Act in New York, New York, requires most city buildings to be constructed in accordance with the LEED standards.¹⁸⁵ Dallas, Texas, has a similar ordinance that requires all municipal buildings to be constructed in compliance with LEED standards.¹⁸⁶ A green building ordinance in San Francisco, California, requires LEED silver certification on all municipal new constructions, renovations, and additions.¹⁸⁷ LEED silver certification is also required on large city projects in Atlanta, Georgia.¹⁸⁸ And Boulder, Colorado, passed an ordi-

nance in 1998 requiring certain green building measures.¹⁸⁹ LEED certification requirements for city buildings are also in place in Austin, Texas; Portland, Oregon; and Seattle, Washington.¹⁹⁰ Cities interested in implementing green building legislation can partner with Global Green USA, a nonprofit that specializes in helping local governments formulate green building policies.¹⁹¹

3. Education

State governments should consider requiring architects to attend continuing education classes focused on green building under the LEED standards as part of their state licensing requirements. Continuing education bills for architects currently exist in Connecticut, Hawaii, and New York.¹⁹² The State Environmental Resource Center provides a model Green Building Continuing Education Act to "establish [] mandatory green building continuing education requirements for architects."¹⁹³

State and local governments should also provide educational programming to developers and the public. Scottsdale, Arizona, created a lecture series focused on green building.¹⁹⁴ One of the lectures focused on interiors and indoor environmental quality and addressed "strategies for minimizing indoor pollutants including material selection, ventilation and filtration."¹⁹⁵ Numerous states and municipalities provide educational materials and listings of resources that can be downloaded from their websites.¹⁹⁶ State and local governments should work to strengthen their educational offerings. States and municipalities that require or encourage green building in accordance with the LEED standards should play a role in teaching developers and the public about the benefits and the practical aspects of meeting the standards.

B. *The Role of the Federal Government*

The WHO believes that national governments are central to developing a strategy for managing indoor air quality.¹⁹⁷ While the federal government should allow state and local governments to introduce their own programs to improve indoor air quality through green building, federal pro-

177. *Id.* The International Energy Conservation Code is in effect in Arizona, Idaho, Michigan, New York, North Carolina, South Carolina, Texas, Utah, and Wisconsin. See International Code Council, at <http://www.iccsafe.org/> (last visited Apr. 25, 2006).

178. Pam Kas, *Government Units Take Interest in Efficient Building Initiatives*, THE STATE JOURNAL, Oct. 27, 2005, <http://statejournal.com/story.cfm?func=viewstory&storyid=6185>.

179. *Id.*

180. Press Release, Rocky Mountain Institute, Comprehensive Energy Bill to Radically Reduce Hawaii's Oil Dependence (Jan. 12, 2006), at http://www.distributedenergy.com/de_news_022006_rmi2.html.

181. *Green Building Standards*, HARTFORD COURANT, Mar. 8, 2005, at A12.

182. See State Environmental Resource Center, *Green Building Standards Act*, <http://www.serconline.org/grBldg/standards.html> (last visited Apr. 25, 2006).

183. *Id.*

184. Fulton, *supra* note 136.

185. New York City Department of Buildings, *Green Building*, http://www.nyc.gov/html/dob/html/guides/green_buildings.shtml (last visited Apr. 25, 2006).

186. *Houston LEEDing the Way to Green Construction*, HOUS. BUS. J., Mar. 28, 2003, <http://houston.bizjournals.com/houston/stories/2003/03/31/focus1.html>; see also Margaret Allen, *City of Dallas Takes Lead on New Green Standards*, DALLAS BUS. J., Feb. 14, 2003, <http://dallas.bizjournals.com/dallas/stories/2003/02/17/focus1.html>.

187. BuildingOnline, *San Francisco Announces Green Building Ordinance*, Nov. 3, 2004, <http://www.buildingonline.com/news/viewnews.pl?id=3568>.

188. David Ho, "Green" Builders Gain Momentum, ATLANTA J.-CONST., Dec. 31, 2004, at 1F.

189. Kibert, *supra* note 10, at 496.

190. Lisa Schuetz, *Green Building Methods on the Rise Nationwide: Sustainable Construction May Give Buildings an Edge in Employee Productivity and Health*, WIS. STATE J., June 15, 2003, at 4.

191. Global Green USA, *Green Building: Cities and Schools*, <http://www.globalgreen.org/greenbuilding/index.html> (last visited Apr. 25, 2006). Partnerships with Global Green USA "inform and direct education, policy development, and advocacy efforts at the local, state, and federal levels." *Id.*

192. See, e.g., H.R. 5813, Jan. Sess. (Conn. 2003); H.R. 93, 22d Leg., Reg. Sess. (Haw. 2003).

193. See State Environmental Resource Center, *Green Building Continuing Education Act*, <http://www.serconline.org/grBldg/education.html> (last visited Apr. 25, 2006).

194. CITY OF SCOTTSDALE, GREEN BUILDING LECTURE SERIES, FALL/WINTER/SPRING—2005/2006, <http://www.ci.scottsdale.az.us/greenbuilding/Lectures/05-06/GBLectureSeries05-06.pdf>.

195. *Id.*

196. See, e.g., Maryland Environmental Design Program, *Indoor Environmental Quality*, <http://www.dnr.state.md.us/ed/ieq.html> (last visited Apr. 25, 2006).

197. WHO EUROPEAN CENTRE FOR ENVIRONMENT AND HEALTH, *supra* note 39, at 11.

grams should be introduced to provide tax savings for green building, promote federal compliance with the LEED standards, and offer green building education. Industry groups support a limited role for the federal government. For example, the Building Owners and Managers Association (BOMA) International declared, “the federal government should support [indoor air quality improvement] through research and public education, focusing on government building operations and regulating the indoor use of harmful contaminants.”¹⁹⁸

1. Financial Incentives

The federal government should provide some financial incentives for green building. Christine Ervin, former assistant secretary for Energy Efficiency and Renewable Energy and former president and chief executive officer of the USGBC, expressed her belief that a federal tax credit program would increase enthusiasm for green building.¹⁹⁹ Indeed, other countries have developed financial incentives on the national level. For example, Finland successfully implemented national government subsidies for indoor air quality improvements in private houses.²⁰⁰

The High Performance Green Buildings Act of 2004 is one example of proposed federal financial incentives for green building.²⁰¹ The bill authorizes the federal government to provide grants to schools to allow for development of school environmental quality plans.²⁰² The bill also establishes a federal Office of High-Performance Green Buildings.²⁰³ The federal government should work to develop similar grants and tax incentives for private sector organizations that choose to build green facilities.

2. Legislative Reform

A federal government policy to promote green building should require that federal agencies design future building projects around the LEED standards. The federal government has already shown a commitment to adopting green principles in its own internal operations through an Executive Order designed to “green[] the government through waste prevention, recycling, and federal acquisition.”²⁰⁴ The order directs executive agencies to develop “procurement preference programs favoring the purchase of [green] products and services.”²⁰⁵ In response, EPA created the En-

vironmentally Preferable Purchasing program.²⁰⁶ Similarly, EPA established the Federal Interagency Committee on Indoor Air Quality, co-chaired by EPA, the Consumer Product Safety Commission, DOE, the National Institute for Occupational Safety and Health, and the Occupational Safety and Health Administration.²⁰⁷ And the federal government recently held a White House summit that resulted in a memorandum of understanding between federal agencies about how they would continue to implement green building.²⁰⁸

The New Apollo Energy Act of 2005 is one example of proposed federal legislation that would require the adoption of green building in internal operations.²⁰⁹ The bill requires that federal buildings meet the LEED silver standards.²¹⁰ The legislation was introduced in response to a report prepared in 2003 by the Federal Environmental Executive that summarized the federal government’s sustainability policies and provided recommendations for the future.²¹¹ Support exists for further federal legislation. In response to the enactment of the Energy Policy Act of 2005, a survey of engineers indicated that 67% wanted more efficient building and equipment codes.²¹²

3. Education

The broad scope of federal agencies makes the federal government well positioned to provide developers and the public with educational materials related to green building and indoor air quality. For example, EPA maintains several educational programs through its Green Indoor Environments Program.²¹³ The programs are focused on improving indoor air quality in institutional buildings, schools, and homes through interactive CD-ROMs and pamphlets.²¹⁴ In association with the Green Indoor Environments Program, the Indoor Air Quality Information Clearinghouse maintains a toll-free number to provide answers to questions.²¹⁵ The federal government should develop programs that address some of the specific benefits of developing in compliance with the LEED standards.

198. BOMA.org, *Indoor Air Quality*, <http://www.boma.org/Advocacy/PositionPapers/iaq.htm> (last visited May 24, 2006). BOMA International is “a primary source of information on office building development, leasing, building operating costs, energy consumption patterns, local and national building codes, legislation, occupancy statistics and technological developments.” BOMA.org, *About BOMA International*, <http://www.boma.org/AboutBOMA/> (last visited Apr. 25, 2006).

199. Schuetz, *supra* note 190.

200. WHO EUROPEAN CENTRE FOR ENVIRONMENT AND HEALTH, *supra* note 39, at 44-45.

201. See High Performance Green Buildings Act of 2004, S. 2620, 108th Cong. (2004).

202. *Id.* §201.

203. *Id.* §102.

204. Exec. Order No. 13101, 63 Fed. Reg. 49643 (Sept. 16, 1998).

205. *Id.*

206. See U.S. EPA, *Environmentally Preferable Purchasing*, <http://www.epa.gov/oppt/epp/pubs/about/about.htm> (last visited Apr. 25, 2006).

207. See U.S. EPA, *Federal Interagency Committee on Indoor Air Quality*, <http://www.epa.gov/iaq/ciaq/> (last visited Apr. 25, 2006). In addition to the co-chairs, members of the Federal Interagency Committee on Indoor Air Quality include several other agencies and departments. *Id.*

208. Press Release, USGBC, USGBC Attends White House Summit (Jan. 25, 2006), <http://www.usgbc.org/News/USGBCNewsDetails.aspx?ID=2139>.

209. See New Apollo Energy Act of 2005, H.R. 2828, 109th Cong. (2005).

210. *Id.* §417.

211. AMERICAN INSTITUTE OF ARCHITECTS, SENATORS PROPOSE GREEN BUILDING LEGISLATION (2004), available at http://www.aiahoutx.org/cote/0723green_bldg.pdf; see also OFFICE OF THE FEDERAL ENVIRONMENTAL EXECUTIVE, THE FEDERAL COMMITMENT TO GREEN BUILDING: EXPERIENCES AND EXPECTATIONS (2003), available at http://www.ofee.gov/sb/fgb_report.pdf.

212. Beck Finley, *The Laws of Conservation*, EC&M, Nov. 1, 2005, http://www.ecmweb.com/mag/electric_laws_conservation/index.html; see also Energy Policy Act of 2005, Pub. L. No. 109-58, 119 Stat. 594 (2005).

213. See U.S. EPA, *Green Indoor Environments Program*, <http://www.epa.gov/iaq/greenbuilding/> (last visited Apr. 25, 2006).

214. *Id.*

215. *Id.*

C. *The Role of Nonprofit Organizations*

Nonprofit organizations can be effective in disbursing green building funding, advocating for legislative reform, and disseminating green building knowledge. Nonprofit organizations provide independent services and advocacy while working in cooperation with state, local, and federal governments.²¹⁶ Governments provide 36% of income to nonprofit organizations in the form of grants, contracts, and reimbursements.²¹⁷ With that in mind, governments should provide funding to nonprofit organizations that fund or promote green building. Governments should also consider collaborating with nonprofit organizations to provide services. For example, the Minnesota Office of Environmental Assistance partnered with several nonprofits to provide joint green building education programs.²¹⁸ Armed with increased government support, nonprofit organizations should play a significant role in improving indoor air quality through green building in accordance with the LEED standards.

1. Financial Incentives

A variety of grants are available for nonprofit organizations seeking to construct a new green facility. For example, the Kresge Foundation launched a Green Building Initiative designed to “increase the awareness of sustainable or green building practices among nonprofits and encourage them to consider building green.”²¹⁹ The organization offers grants to nonprofit organizations ranging from \$25,000 to \$100,000 that cover the added costs of planning a green building above the standard planning process.²²⁰

Grants from the Kresge Foundation enabled several nonprofit organizations to implement specific indoor air quality improvements in their facilities. Furman University constructed the first LEED-certified building in South Carolina.²²¹ The University used specific measures related to indoor air quality, including carbon dioxide sensors, extensive use of materials low in VOCs, and a below-building venting system that manages radon gas that rises naturally from rock.²²² The Discovery Center, expected to obtain LEED silver certification, implemented such indoor air quality measures as increased ventilation, limited use of polyvinyl chloride, and use of low VOC materials in car-

pets, flooring, paints, finishes, glues, and adhesives.²²³ The Community School of Music and Arts applied the LEED standards to improve indoor air quality through a heating, ventilation, and air-conditioning system that uses outside air and through minimal use of carpet and other floor/wall finishers.²²⁴ An increasing number of nonprofit organizations provide similar grants. For example, a \$1.3 million grant from Illinois Clean Energy Community Foundation enabled the Museum of Broadcast Communications in Chicago, Illinois, to move forward with a plan to construct a new green facility.²²⁵

2. Advocacy of Legislative Reform

A primary role of nonprofit organizations is advocacy, the objective of which is “mobilizing broader public attention to societal problems and needs.”²²⁶ Nonprofits should be involved in advocating legislative reform at all levels. The American Institute of Architects recently began a “long-range process to advocate green building legislation at both the federal and state levels.”²²⁷ The organization claims several victories in advocating state legislative reform.²²⁸ Global Green USA engages in “targeted advocacy” that “implements ground-breaking environmental policy.”²²⁹ Other nonprofit organizations, including environmental and citizens rights groups, should advocate for legislative reforms that would increase the adoption of LEED standards as a means for solving poor indoor air quality.

3. Education

Nonprofit organizations play a significant role in educating developers and the public. For example, in conjunction with their green building grants for nonprofit organizations discussed above, the Kresge Foundation also offers educational materials and green building workshops.²³⁰ The USGBC runs a variety of educational programs, including workshops, web-based learning, and the Greenbuild International Conference & Expo.²³¹ The New York chapter of the USGBC launched Green Building Matters, a series of public programs “to explore critical issues related to devel-

216. See LESTER M. SALAMON, *AMERICA'S NONPROFIT SECTOR* 13-17 (1999).

217. *Id.* at 36.

218. MINNESOTA OFFICE OF ENVIRONMENTAL AWARENESS, OEA'S SUSTAINABLE BUILDING EFFORTS (2005), available at <http://www.Moea.state.mn.us/publications/legislature/2005SustainableBuilding.pdf>. Similarly, Santa Monica, California, partnered with Global Green USA to provide a physical presence for green building education in the city. See Green Building Resource Center, <http://www.globalgreen.org/gbrc/index.htm> (last visited Apr. 25, 2006).

219. The Kresge Foundation, *Programs*, <http://www.kresge.org/content/displaycontent.aspx?CID=26> (last visited May 17, 2006).

220. THE KRESGE FOUNDATION, *GREEN BUILDING INITIATIVE: PLANNING GRANT PROGRAM GUIDELINES* 4 (2005). Nonprofits may submit grant proposals when the organization has made a commitment to construct or renovate a facility, secured site control of property, and hired the architect and mechanical engineering professional. *Id.*

221. THE KRESGE FOUNDATION, *NONPROFITS BUILDING GREEN: FURMAN UNIVERSITY* 4 (2004).

222. *Id.*

223. THE KRESGE FOUNDATION, *NONPROFITS BUILDING GREEN: THE CENTER FOR DISCOVERY* 4 (2004).

224. THE KRESGE FOUNDATION, *NONPROFITS BUILDING GREEN: COMMUNITY SCHOOL OF MUSIC AND ARTS* 4 (2004).

225. *Illinois Clean Energy Community Foundation Awards \$1.3 Million Grant to the Museum of Broadcast Communications*, PR NEWSWIRE, May 18, 2004, <http://www.forrelease.com/D20040518/cgty036.P2.05182004101350.08894.html>.

226. SALAMON, *supra* note 216, at 16.

227. American Institute of Architects, *Green Building Summit: AIA Takes Leadership Role*, ANGLE, July 21, 2005, http://www.aia.org/nwsltr_angle.cfm?pagename=angle_nwsltr_20050721&archive=1 (quoting Norman L. Koonce, the American Institute of Architects' Executive Vice President/CEO).

228. See The American Institute of Architects, *AIA State Legislative Victories*, http://www.aia.org/adv_sgn_legwins (last visited Apr. 25, 2006).

229. Global Green USA, *About Global Green*, <http://www.globalgreen.org/about/index.html> (last visited Apr. 25, 2006).

230. The Kresge Foundation, *supra* note 219.

231. USGBC, *Education*, <http://www.usgbc.org/DisplayPage.aspx?CategoryID=127> (last visited Apr. 25, 2006). Greenbuild is “the nation's largest conference on high-performance building practices.” *Id.*

oping high-performance, sustainable buildings.”²³² In addition to programs run by the USGBC, there are several other conferences that aim to promote green building, including the National Association of Home Builders’ National Green Building Conference.²³³

Numerous nonprofit organizations specialize in disseminating green building knowledge to other private sector entities. These organizations should receive government funding. To that end, Boston, Massachusetts, through the Boston Redevelopment Authority, awarded a grant to Third Sector New England for use in a green building feasibility study.²³⁴ Third Sector New England now shares the knowledge it gained as a result of work made possible by the grant with other nonprofits, government agencies, and businesses engaged in green building planning.²³⁵

Knowledge-sharing, green building-focused nonprofit organizations are becoming increasingly common. For example, the Cleveland Green Building Coalition was formed to “generate broad support for various individual efforts, build momentum, and advance the green building agenda in Cleveland and Northeast Ohio through education, consultation, and cooperation.”²³⁶ The Green Building Alliance serves a similar role in Pittsburgh, Pennsylvania.²³⁷ On the national level, the National Resources Defense Council offers a comprehensive five-step guide for constructing a green workplace from inception to marketing.²³⁸

Higher education institutions should also educate future leaders on the benefits of green building.²³⁹ A class at Cor-

nell University offered jointly by the College of Human Ecology and the College of Architecture, Art, and Planning teaches students how to implement the LEED standards.²⁴⁰ Undergraduate and graduate students perform research for real projects, including the Grand Canyon’s South Rim facility.²⁴¹ A similar course is available to students at Pennsylvania State University.²⁴² Colorado State University offers a Green Building Certificate that incorporates an overview of the LEED standards as a significant component.²⁴³ Students at the elementary level can also benefit from education on the benefits of green building.²⁴⁴ A green school in Texas, constructed with low-chemical products to improve indoor air quality, serves as an education tool to teach students the benefits of environmental conservation.²⁴⁵ The project was funded in part by a \$200,000 grant from the government.²⁴⁶ Federal, state, and local governments should continue to fund similar projects that will teach future generations the benefits of green building.

V. Conclusion

Widespread adoption of green building in accordance with the LEED standards is the key to improving indoor air quality. As the personal, economic, and legal complications of poor indoor air quality and indoor air quality-related illnesses like SBS mount, the time is right for policymakers to formulate and implement a comprehensive policy aimed at improving indoor air quality. A comprehensive indoor air quality policy should enable governments and nonprofit organizations to encourage green building in accordance with the LEED standards through financial incentives, legislative reform, and education for developers and the public. When the public and private sectors respond to the problem of indoor air quality with a comprehensive LEED-based green building policy, office workers will at last be able to breathe easy.

232. *USGBC New York Launches Learning Program*, INTERIOR DESIGN, Jan. 6, 2006, http://www.interiordesign.net/id_article/CA6297136/id?stt=000&text=usgbc+new+york+launches+learning+program. The first program in the series was called “Market Transformation: Green Building,” and featured the chief scientist of Climate Change Programs for the Climate Institute. *Id.*

233. National Association of Home Builders, *2006 National Green Building Conference*, http://www.nahb.org/meeting_details.aspx?meetingID=3249§ionID=121 (last visited Apr. 25, 2006).

234. The Nonprofit Center, *City of Boston Awards TSNE Grant for Green Building Feasibility Studies*, <http://www.nonprofitcenterboston.org/section/547.html> (last visited Apr. 25, 2006). Third Sector New England is a resource center for nonprofits, foundations, and similar organizations in the Boston area. Third Sector New England, *Mission*, <http://www.tsne.org/> (last visited Apr. 25, 2006).

235. The Nonprofit Center, *supra* note 234.

236. Greater Cleveland Building Coalition, *About the Greater Cleveland Building Coalition*, http://www.clevelandgbc.org/about_us.html (last visited Apr. 25, 2006).

237. See the Green Building Alliance’s website at <http://www.gbapgh.org/index.asp> (last visited May 25, 2006).

238. See National Resource Defense Council, *Building Green: From Principle to Practice*, <http://www.nrdc.org/buildinggreen/> (last visited Apr. 25, 2006).

239. See Timothy Egan, *The Greening of America’s Campuses*, N.Y. TIMES, Jan. 8, 2006, at 4A.

240. Press Release, Cornell University, Cornell Students Learn Ecological Literacy (May 12, 2003), <http://www.usgbc.org/News/USGBCInTheNewsDetails.aspx?ID=309>.

241. *Id.*

242. *Id.*

243. Colorado State University, *Green Building Certificate*, <http://www.learn.colostate.edu/certificates/greenbuilding.asp> (last visited Apr. 25, 2006).

244. See Liz Stevens, *Burleson Students Seeing the (Day) Light: “Green” School at Forefront of National Trend*, FORT WORTH STAR-TELEGRAM, May 18, 2003, at A36.

245. *Id.*

246. *Id.*