

University of Arkansas, Fayetteville

ScholarWorks@UARK

---

Landscape Architecture Undergraduate Honors  
Theses

Landscape Architecture

---

5-2012

## The new American landscape: beyond bollards and barricades

William Towle

*University of Arkansas, Fayetteville*

Follow this and additional works at: <https://scholarworks.uark.edu/larcuht>



Part of the [Landscape Architecture Commons](#)

---

### Citation

Towle, W. (2012). The new American landscape: beyond bollards and barricades. *Landscape Architecture Undergraduate Honors Theses* Retrieved from <https://scholarworks.uark.edu/larcuht/4>

This Thesis is brought to you for free and open access by the Landscape Architecture at ScholarWorks@UARK. It has been accepted for inclusion in Landscape Architecture Undergraduate Honors Theses by an authorized administrator of ScholarWorks@UARK. For more information, please contact [scholar@uark.edu](mailto:scholar@uark.edu), [uarepos@uark.edu](mailto:uarepos@uark.edu).

# The New American Landscape: Beyond Bollards and Barricades

A thesis submitted in partial fulfillment of the requirements of the  
Honors Program of the Department of Landscape Architecture  
In the Fay Jones School of Architecture, University of Arkansas.

William Christopher Towle

Thesis Committee:  
Chair- Professor Judy Byrd Brittenum  
Member- Professor John Crone  
Member- Officer Jim Dixon

Spring 2013

---

© 2013 by William Christopher Towle  
All rights reserved

Copyright

This is dedicated to my family who has had a history in  
law enforcement and support.

Copyright

## ACKNOWLEDGMENTS

Thank you to my professors, Associate Professor Judy Brittenum who saw me through this process with guidance and support. Thank you for Professor John Crone and Office/Pastor Jim Dixon for being on my thesis committee and providing me an objective opinion when needed and the encouragement to keep going when asked. Thank you to my amazing family, for all their prayers and this wonderful gift of education. Thank you to my loving wife who spent endless nights of proofreading and motivating me to keep going.

The only real security that a man can have in this world is a reserve of knowledge, experience and ability.

– Henry Ford

## TABLE OF CONTENTS

Copyright .....	ii
Dedication .....	iii
Acknowledgments .....	iv
<b>I. INTRODUCTION_.....</b>	<b>1</b>
<b>II. SECURITY DESIGN.....</b>	<b>5</b>
The Role of the Landscape Architect .....	6
Security by Design .....	6
Human Rights .....	7
The Need for a Right to Safety .....	10
Design Research / Evaluation for Security Design .....	10
Security Survey .....	10
Risk Assessment .....	11
The Five Components of Risk Management .....	12
<b>III. REVIEW AND COMPARISON OF LEED, SITES AND CPTED .....</b>	<b>14</b>
Leadership in Energy and Environmental Design (LEED) .....	14
Sustainable Sites Initiative (SITES) .....	20
Crime Prevention through Environmental Design (CPTED) .....	23
Comparison of LEED, SITES and CPTED .....	26
<b>IV. METHODOLGY .....</b>	<b>26</b>
<b>V. TRIAL PROPOSAL TO TEST APPLICATION .....</b>	<b>28</b>
Introduction of New SITES Credit Guidelines .....	29
Application of Test Site and Proposed Security Guidelines .....	30
Research Statements .....	38

<b>VI. EXPERIENCE AND APPLICATION .....</b>	<b>38</b>
History of STITT Energy Systems, Inc .....	38
Introduction of STITT Energy Systems, Inc Project .....	39
Design and LEED Credits.....	41
Analysis and Design Concepts .....	44
Interview of Designer .....	44
Interviewee Personal Comments .....	47
Evaluated Features .....	47
<b>VIII. CONCLUSION .....</b>	<b>49</b>
Applications for Future Use .....	54
What I Learned From this Experience .....	55
<b>AUTHOR BIOGRAPHY .....</b>	<b>57</b>
<b>BIBLIOGRAPHY .....</b>	<b>59</b>
<b>ILLUSTRATIONS .....</b>	<b>.....</b>
SITES Initiative worksheet table. ....	29-30
Aerial Image of test site .....	31
STITT Energy Solutions Office .....	32
Landscape design plan for north and south side of test site location .....	33
Parking lot plan for test site location .....	35
<b>APPENDIX .....</b>	<b>.....</b>
Appendix A: Continued Evaluation Feature Details .....	61
Appendix B: New Sustainable Site Initiatives with Integrated Security Credit	
Section .....	65
Appendix C: Continued Evaluation Feature Details .....	67

## **I: INTRODUCTION**

People value safety and security in their environments. While standards in landscape design have evolved appreciably over recent years, there is still a major factor in landscape design that is being undervalued and overlooked today: security in design. Safety and security are two entities similar in idea but completely individual in their own right. Throughout my education in landscape design I have often reflected on my time as a law enforcement officer when considering safety, health and welfare. This reflection has brought about many questions as to why certain aspects of design are emphasized and the security aspect is not.

I should take the time to further elaborate about my background prior to making the career change to Landscape Architecture. For over ten years I spent my career in the field of Law Enforcement. I worked in many different areas of the profession during this time. Prior to moving forward with my formal education, I spent three years as a 911 telecommunications officer, four years in fire and emergency medical service and seven years in multiple patrol divisions of law enforcement.

In the position of the 911 telecommunications officer, I learned much about public and officer safety. When calls are received for help, one must keep in mind several things: who is going, who else is present, what is the best way to approach this incident, and what surrounding elements could peripherally cause problems on the site. As a result of handling many such cases, I received certifications in basic telecommunications, advanced law enforcement instruction and response, advanced emergency medical instruction and response, and advanced fire service instruction and response. All of these certifications train about life saving techniques for those persons



involved in an incident. They also provide tools to protect others responding to the scene. As I also received certifications in critical and post traumatic stress incidents, hazardous materials identification, and basic telecommunications training instructor, I became proficient in the operations of both the Arkansas Crime Information Center and the National Crime Information Center Database.

During my tenure as a 911 telecommunications officer, I worked in the Fire and Emergency Medical Services field. I also received my certifications in fire fighter 1 & 2, the basic and advanced fire service certifications, first responder certification, emergency medical technician certification and paramedic licensure.

After three years of spending time behind the desk and four years in emergency services, I made the choice to go to a street position and attain my law enforcement certification. My educational background now ranges from a college-level education in criminal justice, to a formal law enforcement education from the nationally-ranked Arkansas Law Enforcement Training Academy (ALETA). Once I received my formal certification and national recognition through the government, I chose to begin my time on the streets as a Deputy Sheriff. After spending the first seven years working for the public sector in city and county municipalities, as well as working on a Federal level for homeland security and drug interdiction, I earned my intermediate law enforcement certification and soon followed with my advanced law enforcement certification. Along with those federally-honored and recognized credentials, I also attended the Federal Bureau of Investigation's Training Academy where I was certified in street, combat and tactical survival, suicide and hostage negotiation, critical incident management, and pressure point control tactics instructor certification. To add to those credentials I also

earned a position on the special tactics and response team, certified expert sharp shooter, traffic division drug interdiction officer working with the third judicial drug task force and was a continual member of the security detail for high level federal personnel visits to our area such as Presidential motorcades and dignitary escorts. I was a senior member of the Rogers Police Department Honor Guard, received three commendations for actions above and beyond the call of duty, and a City of Rogers recognition award for my role in teaching business owners about site and personal safety.

Essentially, I started my career as an entry level patrolman, but by the end of my law enforcement career, I was a Senior Corporal in the traffic division of the Rogers Police Department. My specialized area of professional training was in advanced accident reconstruction.

One would be surprised at the countless number of times I have arrived in the middle of the night at a site, answering an intrusion alarm with nothing more than the illumination of a pale flashlight and an empty, wide open space with a blaring audible alarm. One dim flashing light at the front door greets most officers as they arrive. On those occasions, a security light that could be best described as nothing better than a dim night light as one's first line of defense. A possible intruder could be watching and thinking about how many shots he can take as the officer wanders blindly through the dark abyss. At this moment the officer realizes who has the upper hand and it is not him! He begins to wonder why two tall junipers were planted by the front door. They are now grown to be eight foot round and block three-quarters of the front door, including the security light. Today as a future landscape architect, I view every design from a law

enforcement point of view, and I wonder how a designer can focus on health, safety and welfare without security in mind? There could be an easy answer to this question.

For me, security has always been part of my life. Coming from a long family line of military and law enforcement personnel, thinking about security is second nature. On 9/11 the reality of terrorism and security never quite reached home until I got the call to return to work for a possible terrorist-related incident. Security became a greater threat than I had ever known. During this time I was in my sixth year as a law enforcement officer. I remember that morning clearly. I had gotten home from working a midnight shift and had just gotten to sleep when my Special Tactics and Response Unit (STAR) team, police pager went off. I was called back to work for what was described as a terrorist attack.

When I got back to the station, our chief briefed the team on the events that had occurred and the actions needed to be taken in our assigned posts. As the chief informed us of the first attack on World Trade Center Tower One, we witnessed the second commercial airliner collide with World Trade Center Tower Two. We knew that this was a deliberate act. Fear shot through us all. What was our next move? We were dispatched to corporate offices and local federal buildings. And again, through these memories, I wonder how a designer can focus on health, safety and welfare without security in mind?

## II: SECURITY DESIGN

Throughout history, site designers have included measures for the protection and security of the public or government officials. These measures included protection against persons, elements and events that could do harm to many. Designs once only included enhanced security protection against natural acts, such as rivers, weather and other natural barriers. Man-made elements protecting the public also included fences, walls, protective water hazards, and tree lines. These physical elements also helped to give defenders the upper hand against criminal activity.

Today's increased security design procedures are not much different. Even through one's best efforts to deter harmful or criminal activity against the public, there is always some degree of risk to those who innocently use these public spaces. The goal of good security is to provide protection that is equal to the perceived threat. Any defense measure could be due to natural disaster, physical, monetary or personal limitations.

Even though we employ many of the same techniques today that our predecessors employed, we are now dealing with threats that could have never been conceived to date. Through scientific and technological advancements, our threat range has been expanded significantly. Accessibility to knowledge and materials has also given criminals new weapons for their arsenal. These same advancements have made it possible for us to counter these threats. The criminal and the defender are in a constant battle to stay one step ahead of each other.

The response to criminal activity is multifaceted in order to address perceived threats. It is very important for the landscape architect to be aware of any such threat

that could occur on a site. Based on the use of a site analysis, an important step in developing a site design, each architect should be able to use tools only previously known to law enforcement. A good site design would be based on the individuality of the elements within each site and the means to solve any constraints.

### **The Role of Landscape Architecture**

A landscape architect is trained in the art and skill of creating desirable & safe outdoor spaces. Their education and understanding of site design enables them to create landscapes that best fulfill the needs of the user. Landscape architects understand that it is fundamental to develop a site design that gives the user a perspective of security in a desirable environment. The lack of this perspective results in an overwhelming and intimidating site that one will not feel comfort in and or will not be used. Today, since September 11, 2001 it is easy to spot places where security needs reflected in site design have overshadowed the needs for a socially desirable space. This paper will demonstrate that such dilemma can be resolved by an integration of design and security.

### **Security by Design**

**Globalization** - Most people today would assume that national security is dependent upon the ability to project military strength beyond United State's borders. The organized military is an important part of this country's security, but it is not the only basis for security. Security should consider many other design facets too. These facets are the preservation of environmental resources, the well-being of the public at large,

and the education of our upcoming generations. Security is more than the display of physical deterrents. It is the ability to create the perception of a safe place through physical attributes or design aesthetics without barriers and barricades.

Today we are less secure than at any time in history. The threats that exist are much longer-lived than any previous threat. As a society we are now forced daily, sometimes hourly, to deal with cyber, gang, biological, psychological, social, moral, and hate crimes. In reality, our most pressing long term threat is ourselves! We do more damage trying to prevent the imaginable threats, than truly protecting ourselves. Our over-reaction to small things and our negligence to react to larger threats have more often than not caused society to become self preservationists. By doing this, we as a general public, create a vast worsening of the multiple criminal elements.

In order to achieve good security measures we must adapt to changes within our environment. Changes should include the promotion of integrating security into beautiful design solutions. Instead of local and national agencies looking merely at resilience and sustainability as an abstract and likely unachievable reality, we need to make resilience and sustainability main-street realities.

### **Human Rights**

Whether on a federal or a local level, when one mentions security in public places, one cannot help but think about personal rights. As designers of spaces that require health, safety and welfare measures in design, landscape architects must be conscientious to avoid giving the perception of personal rights violations or minimizing quality of life. In society, most people want to have the feeling of security, but they do

not want to have the feeling of being watched. The Universal Declaration of Human Rights (UDHR) that was adopted by the General Assembly of the United Nations on December 10th, 1948 is a law that presents the rights of all human beings both domestically and globally.

“The 1948 Universal Declaration stressed the interdependence of all human rights (civil, political, economic, social and cultural), all inherent in the human person. Shortly after its adoption, conceived as the first of a three-part International Bill of Human Rights (that was to be followed by a Convention – which later resulted in the adoption of the two Covenants – and measures of implementation), the deep ideological divisions of the world of the 1950s led to the categorization of human rights.”<sup>1</sup>

The thirty articles contained in the declaration are derived from international treaties, national constitutions and laws, and regional human rights agreements. The UDHR is generally agreed to be the foundation of international human rights law. It continues to be an inspiration for all whether in addressing injustices in times of conflicts or for societies suffering repression. It is basic understanding toward achieving enjoyment of universal human rights.<sup>2</sup>

The UDHR represents the universal recognition that basic rights and fundamental freedoms are inherent to all human beings, inalienable and equally applicable to everyone, and that every one of us is born free and equal in dignity and rights. Whatever our nationality, place of residence, gender, national or ethnic origin, color, religion, language, or any other status, the international community has made a commitment to upholding dignity and justice for all.

---

<sup>1</sup> [http://untreaty.un.org/cod/avl/pdf/ha/udhr/udhr\\_e.pdf](http://untreaty.un.org/cod/avl/pdf/ha/udhr/udhr_e.pdf)

<sup>2</sup> [http://untreaty.un.org/cod/avl/pdf/ha/udhr/udhr\\_e.pdf](http://untreaty.un.org/cod/avl/pdf/ha/udhr/udhr_e.pdf)

In Article 3 of the UDHR document, it is stated that “everyone has the right to life, liberty and security of person.” At times though, it may seem that rights are interpreted too liberally and may ironically threaten the overall safety of society.

In May 2002, the 6th World Conference on Injury Prevention and Control was held in Montreal, Canada. The organization compared the issues of health and human rights to personal safety and security. A conference outcome provided a draft charter on the People's Right to Safety.

Today, international protection of human rights depends on our national measures of implementation. This means that in today's society, we must emphasize such national measures of security and safety without showing prejudice to the preservation of the international standards of protection. It is the international protection itself which requires national measures of implementation of human rights treaties, as well as the strengthening of national institutions linked to the full observance of human rights and the rule of law.

Still today in the Twenty First century, the protection of human rights occupies a central position in the international agenda. The 1948 Universal Declaration still continues to retain its strength and importance even after its six decades of adoption. While continuing to remember the past, today people must look to the future and see that there will continue to be considerable advances made in human rights protection. Today the General Assembly of the United Nations “continues on asserting the universality of human rights at both normative and operational levels – as lucidly propounded six decades ago by the Universal Declaration of 1948.”<sup>3</sup>

---

<sup>3</sup> <http://untreaty.un.org/cod/avl/ha/udhr/udhr.html>



## **The Need for a Right to Safety**

A basic need for humans is to feel protected from physical, social and emotional harm. Systems put in place in an attempt to limit injury cannot be implemented without the understanding of all involved. These systems should include all ethical and moral responsibilities to ensure individuals have a right to a safe environment as well as a healthy quality of life. Therefore, designers have a social and moral responsibility to design products, environments, and laws so that people can easily and conveniently behave in a safe manner without sacrificing their quality of life. Such designs, rules, and regulations would reduce the probability of people hurting each other or themselves, even when someone makes a mistake. Such changes will take place in a systematic manner only when safety is recognized as a fundamental right of communities and is not dependent only on the goodwill of powerful institutions.

## **Design Research / Evaluation for Security Design**

In creating a landscape or site design today, one must prepare designs that protect the safety, health and welfare of those who visit local sites from other locales. Guidelines that a designer could use to evaluate a site during the design process would considerably assist the designer to make the best decisions while creating safe spaces for all. These are often called security surveys.

## **Security Survey for Site Design**

A security survey focuses on sensitive areas within a site that are more prone to criminal activity. The sensitive site is one that is considered to offer minimal risk during

any criminal attack. When referring to these attacks, one needs to consider that criminal acts are done with the intent of maximizing success with minimal effort and with finite resources. Criminal intents are traditionally evaluated based on the user's history, activities, image or context of the environment.

When surveying a site, the designer must consider what assets the client is trying to protect. Generally these assets fall into three categories:

1. Personnel,
2. Property, and
3. Significant assets associated with the property, including its reputation, symbolic value, name, and or location.

When evaluating sites in these three categories, a systematic inventory approach can be taken to look at the structure, the site characteristics, and how the site is used.

### **Risk Assessment**

When assessing the risk of criminal activity on a site, one is looking for the attractiveness of the site to a criminal perpetrator. Ease of attack on the site and the possibility of return for further criminal activity are primary incentives for criminal consideration. For example, if a thief successfully steals from a storage unit without getting caught and notices the house was unlocked, they are more likely to return for further damage with little or no fear of apprehension.

Because of incidents like the example mentioned above, risk assessment and risk management practices can be very complicated processes. The reason is that risk is often subjective and based on a complex inter-relationship between the value of an

asset, the potential threats against it, and its vulnerability to those threats, all of which have the potential to change over time. Consequently, when looking at risk assessment, one must frequently address the worst-case scenarios. In a world where the tradeoffs between risk and resources have been accepted on issues ranging from basic parking lot design to as high up as air safety, the general public must engage in the interaction and determinations of what in today's society is considered to be accepted level of risk when thinking of one's environment and potential threats.

Risk assessment and security solutions range from municipal policing to operational procedures. Risk assessment can also be completed in the early stages of design by taking a closer look at site selection and design. This strategy pertains to evaluating the building as well as the landscape or streetscape design. Site selection and landscape use could potentially give a perpetrator the impression of a secure facility. This protection can be accomplished with the use of large standoff distances, building setbacks, vehicular access and, in some cases, pedestrian access. Unfortunately today, risk assessment and management practices are not typically considered in the decision-making process of design but are more of a reaction to, or consequence of, physical or design-based solutions.

### **The Five Components of Risk Management**

When one begins to think about a risk management plan after the general assessment has been completed, one must determine first how the area in which needs to be maintained is going to be used in an effective manner that does not compromise one's quality or way of life. A risk management plan can be accomplished by taking a

closer look at the risk to the user and the risk from the user. To further understand the approach to be taken, one must understand that risk to the user refers to the susceptibility of users to personal or property crimes while at a site location. For example, users may be subject to theft of property, physical assault, or incident to the planned attack. Risk from the user refers to the threat brought to the facility by criminals of a particular character or profile. For example, parking placement and accessibility of visitors to a site may potentially increase the risk of criminal threat to the facility if planned effectively. In Timothy D. Crowe's Book, *Crime Prevention Through Environmental Design*, National Crime Prevention Institute,<sup>4</sup> Crowe details how looking at risk and using the five components of risk management will help to make better personal security decisions as a land use. Crowe speaks of the Five Components of Risk Management as listed below:

1. Risk Avoidance is the process of limiting or eliminating opportunities for loss. This is accomplished by reducing the number of activities or exposure to loss. It can also be accomplished by the complete alteration or cessation of human activities and functions that are vulnerable to risk. This negative approach could be justified only through cost – benefit analysis that indicates a greater potential loss than gain through the continuance of an activity.
2. Risk Reduction occurs in procedural security where loss possibilities are offset through dramatic alterations of the process of accounting for or controlling human functions. Checks and balances are implemented to decrease the likelihood of exposure or to reduce the opportunity for someone to steal or break the law.

---

<sup>4</sup> Crowe, T, (1991) *Crime Prevention Through Environmental Design*, National Crime Prevention Institute. Boston: Butterworth-Heinemann. 25-32

<sup>5</sup> Crowe, T, (1991) *Crime Prevention Through Environmental Design*, National Crime Prevention Institute. Boston: Butterworth-Heinemann. 25-32

3. Risk Spreading is the diversion of resources and assets for the purpose of lowering loss exposure. Distance, location, and time are used to create the spreading of assets. Barriers are also included in this concept of risk management. Security engineering and physical security approaches are inherent in the spreading and denial of access to a site.<sup>5</sup>
4. Risk Transfer is the fundamental aspect of insurance. A large group of individuals share a common risk, such as property or casualty loss. Liability insurance are direct forms of risk transfer.
5. Risk Retention is the conscious acceptance of the potential for loss. Potential losses are not covered necessarily by insurance, nor by other means of security. The owner or individual simply assumes the possibility of loss.

Crowe goes on to further explain that through the use of the five components listed about, the property owner as well as the designer will be able to get a balance to the client's site security needs. One thing to keep in mind while looking at risk management is that it, and its functions, is inherent in any commercial business operation. It is also inherent in the operation of a community or neighborhood in which the site is developed. Without acknowledgement of risk management, most people assume only the risk of criminal victimization. They are less likely to continue to assume a particular risk once they have been victimized.

### **III. REVIEW AND COMPARISON of LEED, SITES, AND CPTED**

#### **Leadership in Energy and Environmental Design (LEED)**

Leadership in Energy and Environmental Design (LEED) is an ecology-oriented certification for buildings. The certification uses the guidelines developed by the U.S. Green Building Council (USGBC). Its goal is to improve environmental and human

health. LEED focuses on improving five major areas of construction. These factors include energy efficiency, indoor environmental quality, material selection, sustainable site development and water savings.<sup>6</sup>

LEED has special rating systems for many kinds of structures, including schools, retail and healthcare facilities. These rating systems are available for new construction and major renovations as well as existing buildings. The program is designed to inform and guide professionals who work with structures to create or convert spaces to environmentally sustainable buildings. These professionals include: architects, real estate professionals, facility managers, engineers, interior designers, landscape architects, construction managers, private sector executives and government officials.<sup>7</sup>

On its website, the USGBC states that LEED defines its national accepted rating system as one "that applies to all kinds of structures, including accepted benchmark for the design, construction and operation of high-performance green buildings." It "provides building owners and operators with the tools they need to have an immediate and measurable impact on their buildings' performance." According to the American Institute of Architects, the 69 LEED points that make up the program's specific design points and considerations can be reviewed in a two-hour meeting, during which time the design team and the owner can decide what level of LEED compliance is desirable for their building project.

State and local governments around the United States are adopting LEED for public buildings of all kinds, and LEED initiatives at the US Departments of Agriculture, Defense, Energy and State drive activity at the federal level. In addition, various types of

---

<sup>6</sup> <http://www.usgbc.org/DisplayPage.aspx?CategoryID>

<sup>7</sup> <http://www.usgbc.org/DisplayPage.aspx?CategoryID>

LEED projects are currently underway in over 40 other countries, including Canada, Brazil, India and Mexico.<sup>8</sup>

LEED consists of a suite of nine rating systems for the design, construction and operation of buildings, homes and neighborhoods. Five over-arching categories correspond to the specialties available under the LEED accredited professional program. The five categories and their nine rating systems consist of:<sup>9</sup>

1. Green Building Designs and Construction
  - LEED for New Construction
  - LEED for Core and Shell
  - LEED for Schools
  - LEED for Retail: New Construction and Major Renovations
  - LEED for Healthcare
2. Green Interior Design and Construction
  - LEED for Retail & Commercial Interiors
3. Green Building Operations and Maintenance
  - LEED for Existing Buildings: Operations and Maintenance
4. Green Neighborhood Development
  - LEED for Neighborhood Development
5. Green Home Design and Construction
  - LEED for homes

In 2009, LEED established a 100 point scale that measures across five major categories, scoring a site based on: sustainable sites, water efficiency, energy and atmosphere, materials and resources, indoor environmental quality; plus an additional six points for innovation in design and an additional four points for regional priority. In

---

<sup>8</sup> <http://searchdatacenter.techtarget.com/definition/LEED-Leadership-in-Energy-and-Environmental-Design>

<sup>9</sup> [www.usgbc.org/ShowFile.aspx?DocumentID=6667](http://www.usgbc.org/ShowFile.aspx?DocumentID=6667)

addition to the scoring, LEED also measures mandatory requirements that do not receive points. Buildings can qualify within four levels of certification based on its total points received:

- Certified: 40–49 points
- Silver: 50–59 points
- Gold: 60–79 points
- Platinum: 80 points and above<sup>10</sup>

LEED promotes a holistic building approach to sustainability by recognizing performance. The following explains the categories in which the site is scored:

### **1. Sustainable Sites**

Site selection and development are important components of a building's sustainability. The Sustainable Sites category discourages development on previously undeveloped land; seeks to minimize a building's impact on ecosystems and waterways; encourages regionally appropriate landscaping; rewards smart transportation choices; controls storm water runoff; and promotes reduction of erosion, light pollution, heat island effect and construction-related pollution.

### **2. Water Efficiency**

Buildings are major users of our potable water supply. The goal of the Water Efficiency category is to encourage smarter use of water, inside and out. Water reduction is typically achieved through more efficient appliances, fixtures and fittings inside and water-conscious landscaping outside.

---

<sup>10</sup><http://www.usgbc.org/DisplayPage.aspx?CMSPageID=1988>



### **3. Energy & Atmosphere**

According to the U.S. Department of Energy, buildings use 39% of the energy and 74% of the electricity produced each year in the United States. The Energy & Atmosphere category encourages a wide variety of energy-wise strategies: commissioning; energy use monitoring; efficient design and construction; efficient appliances, systems and lighting; the use of renewable

### **4. Materials & Resources**

During both the construction and operations phases, buildings generate a lot of waste and use large quantities of materials and resources. The Materials & Resources category encourages the selection of sustainably grown, harvested, produced and transported products and materials. It promotes waste reduction as well as reuse and recycling, and it particularly rewards the reduction of waste at a product's source.

### **5. Indoor Environmental Quality**

The U.S. Environmental Protection Agency estimates that Americans spend about 90% of their day indoors, where the air quality can be significantly worse than outside. The Indoor Environmental Quality category promotes strategies that improve indoor air as well as those that provide access to natural daylight and views and improve acoustics.

### **6. Locations & Linkages**

The LEED for Homes rating system recognizes that much of a home's impact on the environment comes from where it is located and how it fits into its community. The Locations & Linkages category encourages building on previously developed or infill sites and away from environmentally sensitive areas. Credits reward homes that are

built near already-existing infrastructure, community resources and transit – in locations that promote access to open space for walking, physical activity and time outdoors

### **7. Awareness & Education**

The LEED for Homes rating system acknowledges that a home is only truly green if the people who live in it use its green features to maximum effect. The Awareness & Education category encourages home builders and real estate professionals to provide homeowners, tenants and building managers with the education and tools they need to understand what makes their home green and how to make the most of those features.

### **8. Innovation in Design**

The Innovation in Design category provides bonus points for projects that use innovative technologies and strategies to improve a building's performance well beyond what is required by other LEED credits, or to account for green building considerations that are not specifically addressed elsewhere in LEED. This category also rewards projects for including a LEED Accredited Professional on the team to ensure a holistic, integrated approach to the design and construction process.

### **9. Regional Priority**

USGBC's regional councils, chapters and affiliates have identified the most important local environmental concerns, and six LEED credits addressing these local priorities have been selected for each region of the country. A project that earns a regional priority credit will earn one bonus point in addition to any points awarded for that credit. Up to four extra points can be earned in this way.

Basic prerequisites for participating in LEED 2009 include compliance with all environmental laws and regulations, occupancy scenarios, building permanence and pre-rating completion, site boundaries and area-to-site ratios, and obligatory five-year sharing of whole building energy and water use data from the start of occupancy (for new construction) or date of certification (for existing buildings).

LEED is a system that is focused on the building itself, the security of the building and the security of those within the building. LEED does not focus on elements outside of the building such as security measures within the landscape design. Within LEED certifications the four credits that pertain to any form of security are site design (credit 1), site densities (credits 2), transportation directives (credits 4), and low emissions lighting (credits 8). When considering that LEED has over a 100 credits possible just a little over 10% of those credits pertain to the safety and welfare of those visiting the site.

### **Sustainable Sites Initiative (SITES™)**

The Sustainable Sites Initiative (SITES) was created by the American Society of Landscape Architects, the Lady Bird Johnson Wildflower Center at The University of Texas at Austin and the United States Botanic Garden to promote sustainable land development and management practices. The Sustainable Sites Initiative began as two separate projects of the Sustainable Design and Development Professional Practice with the American Society of Landscape Architects (ASLA) and the Lady Bird Johnson Wildflower Center. In 2005, the two groups joined forces to hold a Sustainable Sites Summit in Austin, Texas.

In 2006, the United States Botanical Garden (USBG) joined as a major partner in the SITES Initiative. A steering committee representing eleven stakeholder groups was selected to guide the initiative. More than thirty experts are now on technical subcommittees developing sustainable benchmarks for soils, hydrology, vegetation, human health and well-being and materials selection.

The United States Green Building Council (USGBC), a stakeholder in the Initiative, anticipates incorporating these guidelines and performance benchmarks into future iterations of the LEED® (Leadership in Energy and Environmental Design) Green Building Rating System™. <sup>11</sup> Today these guidelines are beginning to be used and studied by landscape designers, landscape architects, and land planners all over the United States.

The Sustainable Sites Initiative in should not be confused with the Sustainable Site category within LEED. The difference between the Sustainable Site Category in LEED vs. The Sustainable Sites Initiative is that The Sustainable Sites Initiative can apply to landscape sites with and without buildings where as LEED only pertains to site locations with newly constructed or renovated building facilities. In The Sustainable Sites Initiative these sites can include, but are not limited to, the following:

- Open spaces such as local, state and national parks, conservation easements and buffer zones and transportation rights-of-way.
- Sites with buildings including industrial, retail and office parks, military complexes, airports, botanical gardens, streetscapes and plazas, residential and commercial developments and public and private campuses. <sup>12</sup>

---

<sup>11</sup> <http://www.sustainablesites.org/>

<sup>12</sup> <http://www.sustainablesites.org/>

SITES provides tools for those who influence land development and management practices and can address increasingly urgent global concerns such as climate change, loss of biodiversity, and resource depletion. They can be used by those who design, construct, operate and maintain landscapes, including but not limited to planners, landscape architects, engineers, developers, builders, maintenance crews, horticulturists, governments, land stewards and organizations offering building standards.

Within the SITES guideline documents, there is only one area for security assessment in security design. The SITES Section 6, credits 6.5 provides for optimum accessibility, safety, and wayfinding requirements. The intent for these guidelines is to promote site use by increasing the user's ability to understand and safely access outdoor spaces. The requirements also assist to develop and implement a plan for enabling site use without compromising sensitive site features (e.g., wetland, archeological site, heritage tree). This mentioned plan will list the techniques employed and how the techniques accomplish the following objectives in order to comply with SITES. The current guidelines mentioned are broken into three subcategories of: accessibility, safety, and way-finding.

- **Accessibility** (Required): Provide site access and usability beyond required national and local accessibility standards (e.g., Americans with Disabilities Act (ADA)).
- **Safety**: Improve actual and perceived safety of site users. Complete at least three of the five components below:

- a. Clear, defined spaces and access control (e.g., public vs. private)
  - b. Natural surveillance with lighting
  - c. Natural surveillance with entrances and walkways
  - d. Visibility and sight lines
  - e. Varieties of options are provided for access.
- **Way-finding**: Create an environment that makes it easy and intuitive for users to orient themselves and navigate from place to place. Complete at least five of the eight components below:
    - a. Clear entrances / gateways
    - b. Viewpoints and sight lines as vantage points
    - c. Landmarks
    - d. Decision points (nodes)
    - e. Hierarchy of pedestrian circulation
    - f. Distinct areas and regions
    - g. Orientation devices / systems
    - h. Maps / brochures

The addition of SITES to the current LEED standards will certainly enhance the security aspect of LEED. Without the comparison of these new standards to law enforcement standards, a certain measure of security may be missed and complete security may not be fully attained.

### **Crime Prevention through Environmental Design (CPTED)**

Domestic crimes are crimes in which the general public is most familiar. The Crime Prevention through Environmental Design (CPTED) principles originally developed and formulated by criminologist C. Ray Jeffery, work to reduce opportunities for crime on a site in a way that the users are not negatively impacted. CPTED not only

works on a local level but is also used within the Department of Homeland Security and other federal levels to assist in site protection. The principles of CPTED addresses: property boundaries or territories, access control, compatible land use/adjacent land uses, surveillance, and management/maintenance of designed sites. The importance of CPTED principles is that they address reducing opportunity of crime on a site in a way that the users are not negatively impacted.

The method does not focus on setting up obvious measures, such as barricades, but rather strategic planning and design of a site that reduces opportunities of crime. The use of barricades, for example, detracts from the aesthetics of a site and adversely draws attention to their implementation. They also develop a sense of foreboding in those who view such methods of security. This sort of human response results in the reduction of the quality of life. Designing security into a site through the use of aesthetically designed barriers as amenities, such as structures and planters allows greater security and increases overall site aesthetics. Furthermore, the use of structures such as fountains, seating, and light poles may be placed to reduce vehicular access to a vulnerable site. Changes in elevation also prevent vehicular approach while adding design interest and pedestrian circulation.

The first principle of CPTED is territoriality, the manner in which a space defines social norms, authority, and ownership. The purpose of territoriality is to indirectly inform people of the purpose of a property, the acceptable activities and its intended use. Territory can also be expressed through repetition or differentiated design elements specific to the level of security necessary for a given site.

Another way territoriality can be expressed is through the use of lighting. Lighting helps to show and define areas or spaces. For example, at night, lighting helps to define parking lot and sidewalk spaces. These areas are clearly marked by light and help to show a defined edge of area or territory. Lighting schemes are decorative elements that light and illuminate spaces in which trespassing and inappropriate activities occur. For example, rather than using fencing around every site for security, using landscape elements to block vehicles from advancing into a site is much more appealing.

Surveillance is the second principle of CPTED. This principle focuses on people's perception of being watched versus the attempt to reduce criminal activity. Reducing obstructed views and keeping sight lines clear increases the ability of law enforcement and the general public to have natural surveillance on a site. Surveillance levels vary from site to site. Generally, the amount of surveillance is dependent upon the size, stature, and use of the site.

The third principle of CPTED focuses on land that is just outside the site. The land bordering the site's perimeter plays a large role in the security and safety of a site. Therefore, as one designs a particular site, there is a need to recognize its surroundings and how to create more visibility by others looking into it. This will allow for more awareness to the user of their surroundings and heightens security measures.

A fourth principle of CPTED is access control. This principle deals with the entrances and exits of the site. Simple or elaborate signs or guards can mark points of entry and egress. If a person is attempting to avoid using proper access points, such as entering through shrubs or avoiding well-lit paths, guards will quickly notice this behavior and will possibly be able to eliminate a threat before it occurs.



The fifth CPTED principle is management/ maintenance of a property. Maintenance at a site plays a large role in safety and security. When shrubs are tall and nicely trimmed, lights are changed when they burn out, and low hanging tree branches are removed , they give the perception of a heavily watched area. Proper maintenance gives clues to possible criminal activity as well. This deterrent alone can measurably limit criminal activity; if the potential threat notes that perpetrators could be easily detected through a disturbed environment, the threat would likely pass the site by. The perpetrator as well will consider about and most possibly evaluate the risk.

### **Comparison of LEED, SITES and CPTED**

SITES, LEED and CPTED all have similar objectives that do not often overlap. Where LEED covers the security of the building itself, SITES picks up with commercial landscape development. Where SITES leaves off, CPTED addresses criminal activity. A set of guidelines, which rationally merges all three, could easily provide a meaningful document from which a security design could be implemented.

### **V: Methodology**

The idea for this project was generated out of a need to do something that would integrate both my law enforcement background as well as my knowledge of landscape architecture. Through this section and the next, I will discuss the process by which this study was developed. It will include everything from idea generalization, research, goals, objectives, opportunities and constraints to the final product of this thesis.

This thesis will help to create a set of guidelines or standards that could be used for security design. The thesis research began through considering all principles

contained in LEED, SITES and CPTED. Finding that only a few LEED and SITES guidelines addressed security design and judging from first-hand experiences with CPTED, I resolved to a merge of all three sets. The standards of security around public and private places proved to me that similar ideas could be translated into use for municipalities often monitored by the CPTED standards. I began to integrate all these standards into design guidelines that would aid in reducing the opportunities of criminal attack without reducing citizens' quality of life.

*Quality of life* was the aspect I wished to focus on as a landscape architecture student. For example, cultural and social use of spaces is an important part of meaningful design. Designing spaces with mazes of barricades and chain link fencing does reduce quality of life. In this scenario, the public could no longer walk freely within cities.

Why Landscape Architecture? Landscape architects design the built environments of private residences, neighborhoods, and cities while continuing to provide enhancement and management protection of many natural resources. As the profession continues to receive other challenges from society today, we continue to focus on the ethical commitment to improve the quality of life through the designs of the places in which we live. When considering a design for any public or private project, whether new construction or retrofit of an existing site facility, designers need to categorize the enhancement of security as a high priority. Designers are uniquely positioned to contribute to the safety and well-being of all who visit developed sites. We have the duty to respond to the threat of crime by redesigning domestic battlegrounds, thereby giving a tactical edge while taking away every advantage from those seeking to

inflict harm. At this point, we do not have the tools to do so. Such a document does not exist.

While SITES, LEED and CPTED, all contain principles and guidelines for security only one merger needs to occur. This thesis compares and contrasts these entities and then presents a trial site on which to apply the new security guidelines.

## **V. Trial Proposal to Test Application**

### **Introduction of New SITES Credit Guidelines**

While SITES, Section 6 Human Health and Well-being, it does not measure for public or private security. The new proposed security guidelines below are developed to be integrated into the SITES Section 6, which represents credits 6.5. These new guidelines will be a required addition for credit application of commercial use or public facilities. With the introduction of the new proposed guidelines, SITES certified properties will now have a more enhanced standard for safety and security that standards dictate now. The new guidelines are being proposed into the SITES safety section because SITES is the only document between LEED and SITES that has a mentioned area for site safety. If the SITES initiative were to ever be adopted and integrated into the LEED, these new guidelines would already be established and would provide LEED with a safer and more secure design standard for the public. The design guidelines would also be developed and implemented for enabling site use without compromising sensitive site features (e.g., wetland, archeological site, heritage tree).

The plan would also state the techniques employed and how the techniques would be accomplish by following the objectives in Exhibit A below.

Exhibit A Proposed required addition to SITES Section 6 (Human Health and Well-being ), credits 6.5 (Provide for optimum site accessibility, safety, and way finding)

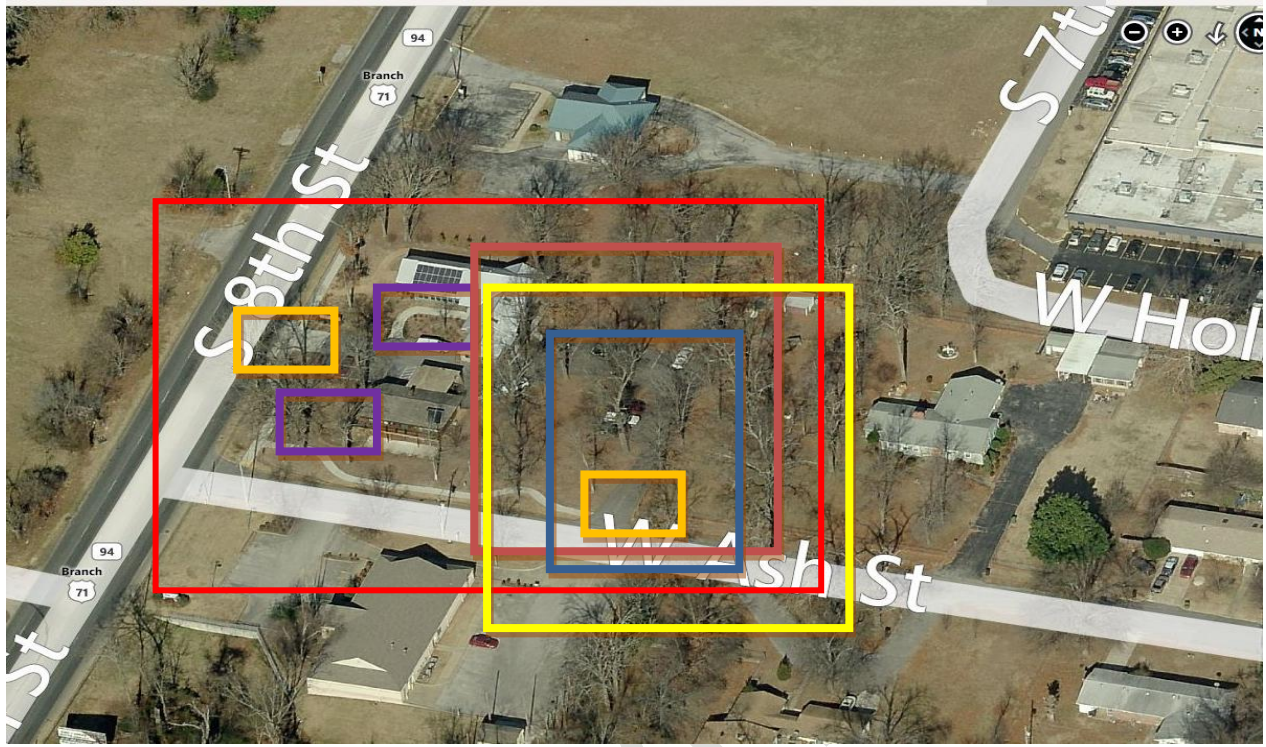
<b>WORKSHEET: PLANNING FOR OPTIMUM SITE USE</b>			
<b>Security (Must complete at least 5 of the 7 below)</b>			
<b>Required Component (Some components were adopted from Crime Prevention through Environmental Design &amp; Law Enforcement Standards)</b>		<b>How does the site incorporate this component?</b>	<b>Examples and additional description of component</b>
<b>Definition of space and access control</b>	Increasing security measures while still clearly defining ownership or use zones	Limiting planting, limiting planting density, opting for open view fencing, limiting height of closed view fencing.	Using decorative rod iron or aluminum fencing in lieu of privacy fencing or chain-linked with privacy slats. If using closed view fencing limit height to 4 foot or less. Use low growing plantings and limit plant density.
<b>Lighting</b>	Exterior spaces and parking lots are well lit	Use of motion lighting to prevents light pollution & helps with energy conservation. Lighting must be placed as to resist tampering. Do not use items that are dark night sky compliant that hinder overall security of the site.	Motion lighting complies with the dark night sky initiative. Motion lighting goes dark when no motion is detected which prevent light pollution, and saves on energy by not keeping high wattage bulbs continuously lit for long periods of time. When motion is detected it heightens sense of awareness, gives potential intruder feeling of being watched, and creates a broad lit area that allows for a response / reaction space. (Fight or Flight. Mounting lights high on poles or on buildings prevents tampering.
<b>Maintenance</b>	Keeping sites orderly and clean		Keeping a site neat, orderly, and in a consistent state gives potential intruders the heightened sense of being caught. It also allows the homeowner to easily detect out of place items or altered spaces in the landscape.
<b>Vehicular points of entry and exit</b>	Provide room for emergency vehicle access. Also provide limited directional entry and exit points.		Make entries and exits wide enough for emergency vehicles such as fire trucks and ambulances. Limit number entry and exit points and make all of those points directional for flow of traffic and prevention of inappropriate ingress and egress.

Layered perimeters	Designed to create buffer zones. Limits areas of access in regards to potential threats		Substantial plantings placed in random patterns that prevent direct access to buildings or pedestrian areas. Changes in elevation can also assist in the same manner.
Natural Alerts	Gravel or plantings that make alerting noises when disturbed.		Loose gravel planted in areas of entry/exit that make noise when stepped in or plants that make rustling noises when disturbed.
Security in planting	Foundation or barrier plantings that can be used as a deterrent against threats		Use Barberry, Holly, or Rose bushes under windows. Thorns will keep intruders away. Beech or locust trees with thorns will also deter intruders from hiding around them.
Natural Surveillance	Keeping open site lines that allow for quick scans of the site rather than requiring constant an up close views to maintain security		Allows citizens, business owners, employees and police patrols to drive by a site and ensure the site is secure through a quick glance rather than having to drive directly to the site for close up inspection.

### Application of Test Site and Proposed Security Guidelines

When the test site, STITT Energy Systems, Inc, landscape design was evaluated against the newly proposed security guidelines for the Sustainable Sites Initiatives, it was again easy to see which of the guidelines had been met with merit and which did not. Shown below are the design plans of the test site and the findings of the above evaluation:

Google Earth Image:



The image above shows the test property after renovation.

The above image, within the red highlighted zone, shows the property in its entirety and how the edges of the property are not clearly defined. The colored boxes help to illustrate the areas in which passed or did not pass the new proposed standards in that particular zone. By looking at the images above, it can be seen how the site allows visitors to come and go easily across the property however fails to give a sense of safety and security late at night. The mature tree canopy creates large areas of shade and darkness that creates apprehensive and fearful feelings for some. This could be eliminated with the use of lighting and a perimeter edge of plantings with motion alert materials to alert the visitor of someone present.

Site Images: STITT Energy Solutions Newly Renovated Office.



STITT Office; First LEED platinum Certified building in Arkansas

As shown in the above photo, natural surveillance to the new entrance and walkways are wide open for all to see in and out from the sidewalk and road locations, as well as from inside the building to the visitors parking lot area.

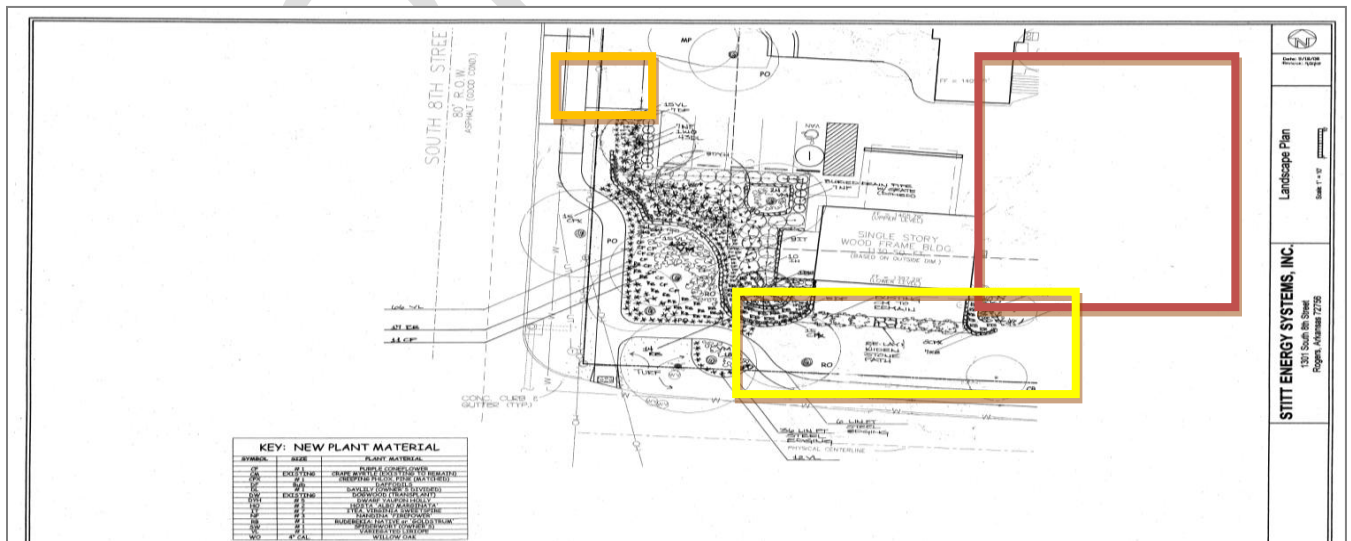
Visibility through sight lines is well organized to allow visitors and guests to easily look across the property and have a safe open feeling. Plantings were kept low and maintained to allow easy visibility out all windows, facing points of entry.

Site Design Plan: North side; Landscape plan around new office building



Both the Northside and Southside site plans show how the new renovated building as well as the existing office are situated on the property and how the landscape plan was designed to meet LEED Standards. This plan was used on site to help make observations against the new proposed security standards.

Site Design Plan: South side; Landscape plan around existing building





Did pass:



- Vehicular points of entry and exit consist of no more than two points of entrance for vehicular traffic and at least three points of entrance and exit for pedestrian traffic. No areas were designed to constrain or isolate any one person.



- The planting beds around the new building help to provide alerts through plantings. The use of plant and ground cover materials, such as rocks and mulch, provide noise alerts to warn if intruders are in those areas of interest. Uses of these were found around most points of building entries and along parking lot areas.

Did not pass:



- Lighting on the site in most areas is associated with security like entrances and exits need to be fully illuminated. Site security lighting such as motion detection lights and reaction spaces were not found. Entrances and exit spaces where lighting was found did not illuminate those spaces with a span that allowed for 8 to 10 foot reaction space at point of potential conflict within the landscape.



- The space was defined by well intended, screened landscape sections however they did created pockets of conflict. The use of heavy, tall screening and fencing blocks views to potential areas of intrusion or threat. Plantings along windows on the North side meet LEED credits but block views out of the building and onto the building.

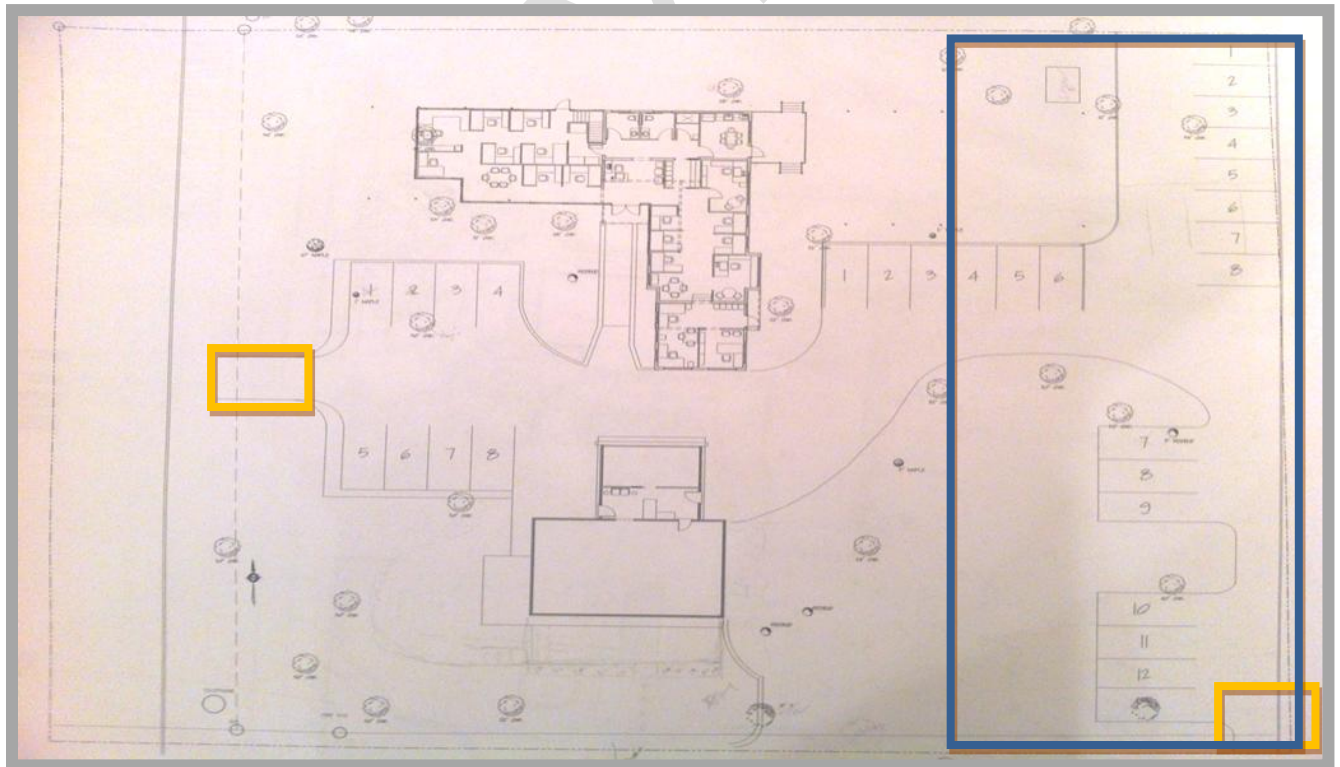


- Layered perimeters such as the parking area on the East side of the property gave concern for employee and visitor safety as it was designed so far away from the other buildings. This area as well is fully exposed to all surrounding properties and has no direct relation to the STITT office. This parking area left visitors feeling exposed and unsecure at night as there was no lighting or other security measures to give a sense of safety.



- Security in planting is lacking on the North side of the new renovated building, where the over grown materials on the East side of the property and the plantings around the existing building created blocked views and areas for perpetrators to lurk. These areas have plantings that are large scale and have soft edges. This does not help to deter criminal activity in these areas.

Parking Lot Design Plan:



In accordance with the newly integrated security credit guideline in the Sustainable Sites Initiative, the test site would have passed and received the additional two credits of the three possible credits available.

As a means to troubleshoot for the weaknesses in the old guidelines, I have also asked for assistance from the owner of the test site and other law enforcement officials. By providing interviews with local and federal officials and post occupancy evaluation of sites in Northwest Arkansas, I believe I have provided an additive component to strengthen the proposed security measures.

In reviewing the participants' answers, I searched for collaboration and the possibility of a direction to apply their LEED knowledge to CPTED/SITES guidelines. When comparing the SITES safety guidelines and law enforcement security practices, the SITES guidelines did not always include proper practices. Therefore security guidelines should be added to the SITES, Section 6 (Human Health and Well-being), credits 6.5 to provide optimum site accessibility, safety, and way finding for public or private security for applicable projects.

As I began to look at what LEED projects already existed locally, I knew several that had not met the standards I proposed. The project at the forefront of security change was the Wal\*Mart Stores Inc. Home Office in Bentonville, Arkansas. The immediate response for security was to install concrete barricades, guards on point, and a visitor screening system. These were the same security barricades used to divide highways and for use at military installations. This response would be a quick and effective one, but it implied to those who observe it that the area is either dangerous or off-limits. The same techniques were used at the Rogers Municipal Airport, aviation

parks, local Corps of Engineers offices, and federal and municipal offices. The same security measures initially taken after 9/11 at our nation's capital were also victims of such short-sighted measures. The shortfall to this approach is that any of these facilities which still exist feel unsafe to anyone who visits. A security device that detracts from the overall purpose of any such site infringes upon the users' experience; it is not the best solution.

After recognizing the aforementioned issues, the federal government devised a set of design mandatory policies that addressed security without infringing on site aesthetics. These suggestions were then considered a necessity and were used liberally at the local government level as well.

Researchers found that through the principles of CPTED, it would be conceivable to incorporate these standards into municipalities based on the "Safe Neighborhoods Act, section 165.513. In these cities, state legislators eventually incorporated CPTED principles into law" (Schneider and Kitchen, 2002, page 10). The development of civic design criteria could then be legitimized locally.

In my research, I found that the CPTED and the Safe Neighborhoods Act could easily relate to most landscape areas. Its guides can be used in security design applications for public or private and commercial operation design as well. Northwest Arkansas provides a great fit for implementation of such criteria, because of its geographical layout, corporate commercial facilities, federal buildings, major industry, professional and university sports arenas, and municipal use buildings in the area. These critical facilities need protection as they are all prime targets of criminal activity, and thus the test site application was selected from group, a corporate commercial

facility. The chosen test site was the STITT Energy Systems, Inc, the first LEED platinum certified site in Northwest Arkansas as well.

### **Research Statements**

The STITT Energy Systems, Inc test enabled me to measure the capability of LEED, SITES and CPTED in a security design form. STITT Energy Systems, Inc provided an ideal opportunity to test my new guidelines. I interviewed the owner and designer of the project and during the interview, I used a set of pre-established questions which incorporated CPTED-based design ideas and the SITES credit guidelines. I also used GIS data for the parcel and building footprint, and the initial design plan from the landscape designer of record.

From this test it was apparent that the SITES safety credit guidelines needed to have more stringent requirements to move from safety to security practices. Therefore in the conclusion, I developed a list of guidelines that incorporates security tests. The intent is that the guidelines would assist public and private sectors to implement more advanced security designs in addition to the LEED and SITES requirements which are now available.

## **VI: Experience and Application**

### **History of STITT Energy Systems, Inc.**

For over 34 years, the family-owned STITT Energy Systems has strived to continue to improve on their green, healthy homes with product technology and environmental stewardship. Through the companies' hands-on approach to teach

others, owner, Orlo Stitt and his team continue to grow and apply sustainable design practices today. When interviewed, STITT stated "Since founding our company 30 plus years ago, we have designed and built hundreds of energy and resource efficient homes. That has always been our focus, long before such a business model was popular or well-known". The company's challenge then and now is to research new products and technologies, to examine their cost/benefit ratio, and to incorporate appropriate materials and methods into 'the system' of thousands of pieces and parts that make up a home."

Because of this long history and willingness to share with others the knowledge they possess, STITT Energy Systems, Inc has become a name synonymous with energy efficient, residential construction. STITT Energy Systems, Inc has become a nationally recognized leader in the fight for sustainable, eco-friendly construction. Through this recognition they have received 19 Energy Value Housing awards, two People's Choice awards, and a National Association of Home Builders, Model Green Home Building Guidelines award.

The STITT Team in general is very forward-thinking, knowing that actions taken today will affect future generations. That commitment to what is now called "the green lifestyle" is not new to this company, and its long history and documented success are the foundation of their plans for the future.

### **Introduction of STITT Energy Systems Project**

In the latter part of 2008, STITT Energy Systems made the decision to show the public and their clients that they live and work still today in the philosophy that they have

integrated into their designs for over thirty years. At a time when the home building industry entered an economic downturn, STITT Energy Systems was still devoted to building green, healthy, energy efficient and beautiful homes. Additionally, they made an early decision to expand one of their corporate office buildings to a showcase facility. This expansion project consisted of a wing on an existing building that would not only be renovated, but all salvageable parts of the structure would be reused back on the site. In July of 2008, the current office space was expanded from 1,000 square feet to 2,800 square feet on the existing original 1.01 acre lot. The new facility was to be built and designed to achieve a LEED registered, project certification. The decision to expand during a difficult time for homebuilders was not taken lightly. STITT Energy Systems deliberated the expansion and decided to go forward based on their future in homebuilding and dedication to development of green building. The new expansion is a tribute to the company's green living philosophy and the dedication they give to each client's new home.

David STITT, Vice President says, "Our Company uses concepts of design, energy efficiency and resource efficient materials in our clients' homes. We want to incorporate those same concepts in our new office space. We also want independent verification of our efforts and chose LEED because it is recognized and understood by both the public and professionals in the 'green' building industry."

In thinking about the new expansion and project scope, STITT was adamant about being certain that the site would be a sustainable site development. When designing and planning the sustainable site features, the company decided to enlarge the project boundary to include the whole property, not just the area immediately around

the new building. STITT commented on the site property, "Just as we do with our home designs, we are considering the effect of this construction on the many large trees on the site. Only two have been removed, and we will plant new trees for each one removed. The wood has been cut for firewood and the small limbs have been chipped for mulch, which we'll use now to control erosion, and later as part of the landscaping. Trees are far too much of an asset to cut them when you don't have to do so. They provide natural shade and enhance the setting--not to mention the CO2 they capture and the oxygen they produce."

In the landscape portion of the project, the design emphasis was based on the landscape design, materials, water savings, and energy efficiency. When STITT asked the landscape design firm, to evaluate the STITT Energy Systems commercial property, it was an exciting proposal for all involved. The STITT's request was to create not only an inviting landscape but also a sustainable landscape for their commercial renovation. The landscape was not only to be esthetically pleasing to the owner but also to those who visit the site. The landscape would be one in which passerby on the adjacent highway, the local pedestrian, and the company's clients, and employees would appreciate. STITT then requested the landscape be designed as an outside educational area also. STITT wished that all who saw the landscape could learn about environmental stewardship and application.

### **Design and LEED Credits**

The scope of the landscape designer was to create a place that provided year-round street appeal to potential STITT Energy Systems customers, beautiful internal



views for STITT Energy Systems employees, and storm water management & water conservation strategies. To provide professional knowledge to successfully achieve the LEED platinum certification, the LEED designer used New Construction Ratings (NC-R). The following ratings were applied: C1.1-1.2 Water Efficiency; C5.1 Site Development: Protect or Restore Habitat; C5.2 Site Development: Maximize Open Space; C7.1 Heat Island Effect: Non-Roof.

In addition, the landscape design had to meet the highest standards for passive solar practices as it functions as a living demonstration for STITT customers. The landscaping was also to include no-irrigation gardens for indigenous plants, rain gardens and bio-swales, all which would control rainwater run-off into the street or storm sewers.

The designer impacted grading with tree-saving specifications to the owners and engineers for specific sidewalk placement and construction. In total, the landscape alone was credited with receiving sixteen points just through the accomplished landscape design.

During this project, again the STITT Energy Systems, Inc standards and design philosophies were considered. STITT Energy Systems, Inc has built its business on a thirty-year philosophy of conservation, preservation, function and prudent economics. It was imperative to not only the owners but also for the design credit consideration to develop a plan that would repurpose the existing hardscape and plant materials on site. The staging and timing of plant installations helped maximize plant survival and water efficiencies. Though technically a commercial site, the landscaping is a demonstration to all homeowners of good environmental practices for their homes as well.

Through publicity at the opening of this first Platinum LEED NC-R project in Northwest Arkansas (2009), plus the day-to-day experiences of STITT Energy Systems, Inc clients seeking environmentally responsible home design, this project and its landscape have been an ongoing teaching tool for the company. Plant materials were selected for their native, adaptive qualities and for their drought tolerance. This strategy continues to demonstrate sustainability and aesthetic value by flourishing in the face of severe weather conditions in Northwest Arkansas in recent years. The site design and the design credits which the landscape designer was asked to supply, and were added to LEED achievements.

Sustainable Sites Credit would have been the only area in which landscape design in security have been applied. Unfortunately, nowhere in this section of credits is this mentioned. The credits for LEED that pertain to the landscape all fall within the Sustainable Site Credit. As for the LEED credits, only 14 of the 69 points possible apply to the landscape, and only one of the 14 address security. Furthermore, only one credit (8.0) relates to light pollution and the amount of light on the site location. The other LEED credits section that could apply to security through the design approach is Section 5.2, Site Development. Therefore throughout this design, the designer could only work to achieve a total of six credits.

The credits which the design strived to achieve through LEED were: LEED Water Efficiency Credit C1.1-1.2 Site Water Efficiency for Landscape and Site water mitigation; C5.1 Site Development: Protect or Restore Habitat; C5.2 Site Development: Maximize Open Space; and C7.1 Heat Island Effect: Non-Roof.

Out of the six credits the landscape designer worked to achieve, all were reached. In total, the project scope and design achieved a total of 54 credits and thus awarding this project site at a LEED Platinum Certification.

### **Analysis and Design Concepts**

When thinking about this site and how it was used, security was not fully explained. The question was raised that those who use the site and its contents were not paramount. The company's many daily visitors need to feel secure and so did the evening visitors.

Designers are educated to think about the health, safety and welfare of who visit the site; but what tends to happen, is designers get tunnel vision for the requirements of the design, and the idea of security becomes a second-hand thought. Security in design is usually thought to be an architectural device, including mechanical alarms, and lighting. From an architect's point of view, security begins at the front door. However it occurs throughout the site, as landscape architects, we know the design must have aesthetic appeal as well as be safe for the public. But how can security be emphasized when designers think it is secondary? Most tend to think of lighting, shrubs, concrete walls and gates as security considerations. Common logic includes more. Let us think about security and how we can have security without all the barricades and barriers, but rather through aesthetic design.

### **Interview of Designer**

In thinking about this site design and how to evaluate what had been done, one must first know the point of view or thought process of the landscape designer for this

project. In interviewing the landscape designer of the test site, I was able to receive a better understanding of exactly what she had in mind. Through a series of questions that pertained to not only the design, but to LEED, SITES, and security, I was able to get a basis for the level in which the design was based, what credits the designer was considering, the knowledge base used for SITES, and if security had prioritizations.

Throughout our conversations, I found that on several different subjects, the conversation found its way to asking whether LEED was here to stay or just a fad. The overall impression was that some companies that aspire to LEED certification were doing so out of marketing motivations to “be green” versus a personal or corporate philosophy. Ultimately the commitment to live an environmentally responsible lifestyle in either a personal or business capacity is a personal or company commitment.

LEED standards themselves are a good benchmark for design awareness that leads to environmentally conscientious decisions and operations. For the particular LEED project used as the test site, sustainability was the primary focus of the owner’s personal philosophy. Marketing motivations were important for their business as well, but the thrust of their efforts was motivated from a lifetime of environmental preservation.

In the initial part of the interview, a question about perception of site security and personal safety was asked. I was curious to know how the designer and / or owner considered then during the design process or when applying LEED standards. The designer noted that the site was to function for the personal safety of the employees. It was a consideration of the owner, but was certainly not addressed as the owner worked

toward their platinum LEED certification. The reality is that if a site is not perceived as safe, users will avoid the site, reducing economic opportunities for those businesses at the site. This makes those business entities unsustainable economically or compromised due to lack of traffic. If the LEED standards are truly aimed at creating sustainable sites, then it would seem safety and security standards would be advantageous to owners of LEED certified sites.

The designer did note that after taking a closer look at the STITT Energy Systems, Inc. initial plan, she realized that the element of security was overlooked. She explained that throughout the process of design, the designer can tend to get tunnel vision on focusing on the primary goal at hand and will sometimes overlook the obvious by accident. This is not to say that security should be overlooked but it does occur. Moreover, the designer stated that maintenance and lighting is a more commonly used deterrence for crime rather than a full security plan including clear sight-lines, cameras, guards, adjacent site security, and onsite mechanical devices.

When evaluating the test site design, areas were improved upon based on security within the design. Some areas in which were found were the areas of natural surveillance. Maintaining open views thru plant materials would have helped to provide an easy, natural surveillance measure for this site. Another area was site lighting. The designer mentioned that when designing to achieve the LEED credit, one might get so involved in the light pollution, that the fear of exceeding the light limit and losing the applied for credit would hinder or possibly be key in the lack of security lighting.

The designer also mentioned through discussion that there could be further security standards that could enhance environment design. This could also allow for

more fluid design without inhibiting the aesthetic appeal or quality of site. Therefore if the SITES credit guidelines included a safety aspect, then design expectations could include security along with accessibility, safety and way findings for an all encompassing perspective.

### **Interviewee Personal Comments**

The STITT plan designer stated that “in only small ways I have considered personal safety in design thru utilizing some basic design standards such as ADA standards, or standards for stairways, pools, hardscapes, etc. However, this study has made me acutely aware of ways that I should address safety and security considerations in any project going forward. Most of my work is residential in nature, but I believe that safety and security are equally important for our home environments as well as in commercial applications and public spaces.” Although this designer is one in many, she is not alone within the landscape design and engineer industry, for what we hold as safety and security expectations.

### **Evaluated Features**

When evaluating the test site design, observations were made of what the designer had to work within on the site in order to achieve the credits received. Then the site was evaluated based on the proposed standard of the evaluation of the existing standards for the SITES standards. When looking at the site, I evaluated it based on the standards listed under Section 6 in the Safety Section of SITES.

Safety in SITES Section 6 was described as making a site user-friendly. It was explained that people are more likely to use a site that is easily accessible and safe.

When designing a site, designers must think about ways to make users feel safe by improving visibility, showing signs of human care and maintenance, and making it easy for users to orient themselves. Then when measuring the safety section, at least three of the exiting five components have to be met in order to receive the credit. The requirement options are: 1. Definition of Space access Control; 2. Natural Surveillance lighting; 3. Natural Surveillance walkways; 4. Site Visibility; 5. Variety of Options in access; 6. Landmark spaces; 7. Distinct areas and regions; 8. Orientation devises.

When the test site's design at STITT Energy Systems, Inc was evaluated on the previous mentioned standards, it was easy to see which of the standards had been met with merit and which did not. Listed below are the findings of that evaluation:

Did not pass:

- Natural Surveillance Lighting: Lighting in such a way that ever 25 foot of distance was visible and did not cast shadows.

Did Pass:

- Definition of Space Access Control: The walkways and landscaping helped to direct visitors to the proper entrances and exits away from or toward private areas.
- Natural Surveillance Entrance and Walkways. The designer did a good job in regards to keeping all entrances and walkways visible from most street sides, other than adjacent building and east side of property streets and other activity area.
- Visibility –Sight Lines. Walking trails were good and clear to most people looking across sight. Understory planting were kept low not to obscure sight lines.

- Variety of Options that Provided for Access: The site design had at least two points of exit and entrance for vehicular traffic and at least three points of entrance and exit for pedestrian traffic. No areas were designed to constrain or isolate any one person.

In accordance with the current Sustainable Sites Initiatives, the test site would have passed and received three of three possible credits.

## **VIII. CONCLUSION**

This pilot research study began with the theory that it was possible to incorporate security measures to reduce the opportunities for criminal attack through site design at commercial facilities through the use of CPTED application inserted into the current SITES Initiative standards for safety. Through the research theory of the CPTED, and its application to mainstream LEED and SITES standards, new design standards were developed by the researcher based on the information discovered.

These ideas were then tested on the STITT Energy Systems, Inc project and determined whether they had merit through a security survey. The level of risk concerned was determined from the use of a generalized risk assessment. Identification of the sites weaknesses and strengths through CPTED applications were produced. These concepts were enhanced through the use of an interview with the owner and landscape designer. Their feedback provided useful information that later was used to help test the new security standards for use in the Sustainable Sites Initiative. The end result determined that particular parts of CPTED could assist in reducing criminal activity through the application of the new security standards provided for the Sustainable Sites Initiative. The applicable new security standards provided to the



Sustainable Sites Initiative with the incorporation of CPTED procedures should include the following:

### Natural Surveillance

Natural Surveillance is a design concept directed primarily at keeping potential criminals and their targets under observation. Applying natural surveillance concepts during planning often reduces the need for more expensive security measures.

### Natural Surveillance Examples

- Orient building and windows to provide maximum surveillance of exterior areas.
- Limit the use of window vision restrictors such as potted plants, draperies, signage, landscaping, public art and reflective window treatments.
- Design parking lots to allow a high degree of observation from buildings and streets.
- Plan entryways that are visible to adjacent neighbors or passersby; not secluded alcoves.
- Design interior shelf height in retail and commercial uses to no more than five feet.
- Utilize peepholes and vision panels in management offices and rear doors to provide surveillance and observation.
- Locate benches throughout common use or employee areas to enhance observation and supervision of surrounding areas.
- Place child play areas in maximum observation locations.

## Natural Access Control

Natural Access Control is a design strategy directed at decreasing crime by denying access to targets and creating a perception of risk to offenders. It is also used to prevent public access to private areas. CPTED discourages a "fortress mentality" but recognizes that high-value targets require the application of more traditional security measures.

## Natural Access Control Examples

- Restrict number of entry/exits for better supervision.
- Use landscape such as low hedges and flowerbeds to identify points of entry and movement on property.
- Use signage and symbolic barriers to direct vehicular and pedestrian traffic.
- Designate boundaries between public, semi-public and private spaces.
- Use reception areas to control the flow of visitors.
- Use illustrated diagrammatic representations in lobby and common areas.
- Use light to guide movement.
- Use security planting to restrict access to private areas.
- Install devices to prohibit general access to unauthorized areas.
- Locate public paths in direct routes to points of entry.

## Territorial Reinforcement

Territorial Reinforcement is the belief that physical design can contribute to a sense of ownership and responsibility for a space. This results in higher actual and perceived levels of risk to potential offenders.

## Territorial Reinforcement Examples

- Use thorny or thick plant materials in perimeter landscape areas to discourage cutting through parking areas, trampling vegetation, approaching ground floor windows or climbing fences and walls.
- Use appropriate signage to discourage trespassers, loitering or consumption of alcoholic beverages.
- Use public art, sculpture, flags and banners where allowed.
- Use physical and symbolic barriers.
- Use City crime prevention programs such as Neighborhood Watch, Business Watch and Partners Against Crime along with appropriate signage.
- Modify surfaces to make tagging (graffiti) or skateboarding more difficult.
- Use landscape lighting to mark territory.

## Law Enforcement Perspective

- Keep foundation plantings low (Reduces hiding areas for potential intruders)
- Do not have foundation plantings that will grow to cover windows (Removes cover for intruders)
- Do not have foundation plantings that form hedges (Removes cover for intruders / predators)
- Do not have plantings near entry / exit areas. ( Eliminates cover for Predators)
- If plantings are tall keep vegetation thinned out to remove predator / intruder cover
- Keep parking areas well lighted

- Make entry / exit areas easily visible to foot / vehicle traffic
- Keep entry /exit areas well lighted
- Try not to install loose items in landscape that can be used as potential instruments of crime
- Use thorny bushes and landscape plantings such as roses, hollies, and barberry. (eliminates potential hiding areas)
- Trees should be kept limbed up and away from the structure as not to obstruct the view of the building from passersby. (reduces predator / intruder cover)
- Multi trunked trees should be kept thinned out and canopies high if planted near the foundation of structures. (reduces predator / intruder cover)
- Do not place large statuary around entrances / exits. (reduces predator / intruder cover)
- Keep all sides of building well lighted or at the least on motion sensitive lighting. (Intruder / predator deterrent. If they can be seen, they won't stay)
- Keep parking area plantings low (reduces predator cover)
- Do not have high burms in areas that reduce building visibility
- Try to avoid fencing that obstructs view. (Privacy type fences keep passersby and security from viewing the area)

This new set of proposed standards contributes to the field of landscape architecture by integrating a stronger, more applicable set of standards for safety and security which can be easily accessed and applied by designers to LEED certified properties. A final product of the use of these new standards will further provide the perception of daily securities for the general public.

In the future, there is still a great deal of work and research needing to be done to create a generalized standard of security in design. Future case studies could include testing these proposed standards against new and future LEED certified sites in different regional and state locations. Obviously not all site locations and designs can be classified the same nor should they be. Each site is individually unique to its own set of security measures needed. The continued testing and evaluation of these new standards proposed would help to bring light, awareness, and education to designers and owners alike. These test case studies would help over time to create an applicable data base of generic needs and voids in design that could be accounted for with the help of created new standards for future use in security design. These new standards could then be adopted by and applied to SITES and LEED for added certification points. Keep in mind, the future is open when it comes to security in today designs. You can never design for every “what If” situation. However, we can be conscious as designers of our users and the potential risks factors that are apparent on our design locations and surrounding. These proposed new standards are just the basics. These standards could be expanded on a broader scale to incorporate bio-hazard measures, industrial design, and protection for municipal / federal facilities. In the end, the idea is to bring new standards of awareness to designers, property developers, and municipality’s that security in design can be functional, aesthetic, while achieving its end goal, to create users a safer and secure space whether public and private.

## **Applications for Future Use**

This study provides an opportunity for future professionals to test the theory on pilot sites in other cities. Other LEED Certified sites in other locations could also be tested against the extended SITES standards presented here to see if the designs meet the new proposed credits. Adoption of the Sustainable Sites Initiative into the LEED Certification process should include these new security standards. Security and design are becoming more relevant in our world, and involvement for the betterment of society is a way to be involved as landscape designers, landscape architects, and stewards of the earth.

## **What I Learned From This Experience**

This experience was an affirmation of my initial thoughts that safety was in the forefront of current sustainable design standards while security was not. I had a preconceived idea of security and how people related to security elements on design. Through the evaluation of the STITT Energy Systems, Inc project, I received a better knowledge and personal experience of how limited people really are about the idea of security. The standards for safety are usually mandated throughout the design process, but security tends to fall far behind or sometimes is forgotten. I now understand uniquely CPTED standards and how they could be applied to most commercial design situations. Some of the participants I contacted offered new ideas about educating other designers and property owners on security standards as well as to identify suspicious situations. Educating the public to identify these behaviors and to become more aware of their surroundings would be enhanced if designers used the new security standards to educate their clients.

This experience allowed me the invaluable experience of working with professionals familiar with LEED and SITES. It allowed me to incorporate my previous law enforcement experience into my landscape architecture education while educating others about security. It allowed me the chance to become a participant in my own right to offer something to the community as a resource to fight criminal activity and help others to feel safe through site design. In the future, I hope to continue research that will help to establish a more defined and generalized set of standards for security to be adopted by the Sustainable Sites Initiative and incorporated into the LEED Certification process. This pilot case study was to help show the current state of security procedures in design and to show what the next steps need to be to be efficient in design. The case study locations mentioned in this research were investigated to help define the need for new standards. Security and design are becoming more relevant in our world, and involvement for the betterment of society is a way to be involved as landscape designers, landscape architects, and stewards of the earth.

## AUTHOR BIOGRAPHY

William C. Towle, born in Rogers, Arkansas was raised in various cities in Benton County, Arkansas and Denton County, Texas. Towle is a candidate for graduation from the University of Arkansas with a Bachelor of Landscape Architecture, in May 2012. Professional experience includes project manager and consultant for a Rogers, Arkansas Landscape Design firm that developed and designed the first LEED Platinum Certified site in Northwest Arkansas. Prior to Towle entering the Landscape Architecture Profession, he served over a decade in the profession of law enforcement working for three departments; two were large municipalities and one, a county Sheriff's Department in the third most populous county in Arkansas. Towle also holds certifications from the Arkansas Fire Fighter Training Academy. Among others Towle has these credentials listed below:

### **Local Educational:**

Northwest Arkansas Community College, Bentonville, AR

EMT / Paramedic/ Criminal Justice Certifications;

University of Arkansas, Fayetteville, AR

Criminal Justice Certification

### **Federal Educational:**

Texas A & M University, College Station, TX

Advanced Accident Reconstruction Certification, School of Engineering;



Arkansas Law Enforcement Training Academy, Camden, AR

Criminal Justice / National Law Enforcement Certification;

Arkansas Fire Fighter Training Academy, Camden, AR

Fire Fighter One and Two Certifications / Paramedic Training for Tactical Team;

**International Educational:**

Federal Bureau of Investigations, Quantico, VA

Homeland Security Detail Certification, Street Combat Survival Certified; and  
Hostage and Critical Incident Negotiations Certified;

**International Relations:**

Kosovo Civilian Police International, Pristina, Kosovo 10000 (UNMIK)

Overseas Civilian Police Patrol/ Homeland Security

**Law Enforcement:**

Towle has received over 30 certifications and accommodations on both municipal and federal levels that notably are:

- Nationally Certified Advanced 911 Telecommunications Officer;
- Basic and Advanced Fire Service and Emergency Medical Certifications / Licensures through the Arkansas Fire Academy;
- Basic, Intermediate and Advanced Law Enforcement Officer Certifications through the Arkansas Law Enforcement Academy; and

## **Bibliography :**

ASLA (American Society of Landscape Architects). (n.d.). Retrieved March 14, 2012, from [http://www.asla.org/nonmembers/publicrelations/what\\_is\\_asla.cfm](http://www.asla.org/nonmembers/publicrelations/what_is_asla.cfm)

Crowe, T, (2000) National Crime Prevention Institute. University of Louisville, Architecture 283-333

Crowe, T, (1991) Crime Prevention Through Environmental Design, National Crime Prevention Institute. Boston: Butterworth-Heinemann. 25-32

*Hopper, L, (2005) Security and Site Design, A landscape Architectural Approach to Analysis, Assessment, and Design Implementation, Hoboken, New Jersey 14-131*

Jeffrey, C. R. (1971). Crime Prevention Through Environmental Design. Beverly Hills: Sage.

Newman, O. (1973). Defensible Space: Crime Prevention through Urban Design. New York: Macmillan.

Schneider, R. (2002, September) American Anti Terrorism Planning and Design Strategies: Applications for Florida Growth Management, Comprehensive Planning and Urban Design. Nelson Symposium on Growth Management Legislation, Fredric G. Levin; College of Law, University of Florida.

SITES (The Sustainable Sites Initiative) May 7, 2012. From <http://www.sustainableites.org/>

Speckhardt, L., & Dowdell, J. (2002, September). Creating Safety, Landscape Architecture,, 64-72.

Thompson, J.D. (1999, March). Security Details, Landscape Architecture, 88, 3, 56-62.

The Offices of Audiovisual Library of International Law, Universal Declaration of Human Rights, May 3rd, 2012 from <http://untreaty.un.org/cod/avl/ha/udhr/udhr.html>

Travis, J. (1995). Research in Action Threat Assessment, An Approach to Targeted Violence.

USGBC (United States Green Building Council). Retrieved Feb 23, 2012, from <http://www.usgbc.org/ShowFile.aspx?DocumentID=6667>

**APPENDIX**

Copyright

## Appendix A: Continued Evaluated Feature Details

### Natural Surveillance

Natural Surveillance is a design concept directed primarily at keeping potential criminals and their targets under observation. Applying natural surveillance concepts during planning often reduces the need for more expensive security measures.

### Natural Surveillance Examples

- Orient building and windows to provide maximum surveillance of exterior areas.
- Limit the use of window vision restrictors such as potted plants, draperies, signage, landscaping, public art and reflective window treatments.
- Design parking lots to allow a high degree of observation from buildings and streets.
- Plan entryways that are visible to adjacent neighbors or passersby; not secluded alcoves.
- Design interior shelf height in retail and commercial uses to no more than five feet.
- Utilize peepholes and vision panels in management offices and rear doors to provide surveillance and observation.
- Locate benches throughout common use or employee areas to enhance observation and supervision of surrounding areas.
- Place child play areas in maximum observation locations.

### Natural Access Control

Natural Access Control is a design strategy directed at decreasing crime by denying access to targets and creating a perception of risk to offenders. It is also used to

prevent public access to private areas. CPTED discourages a "fortress mentality" but recognizes that high-value targets require the application of more traditional security measures.

### Natural Access Control Examples

- Restrict number of entry/exits for better supervision.
- Use landscape such as low hedges and flowerbeds to identify points of entry and movement on property.
- Use signage and symbolic barriers to direct vehicular and pedestrian traffic.
- Designate boundaries between public, semi-public and private spaces.
- Use reception areas to control the flow of visitors.
- Use illustrated diagrammatic representations in lobby and common areas.
- Use light to guide movement.
- Use security planting to restrict access to private areas.
- Install devices to prohibit general access to unauthorized areas.
- Locate public paths in direct routes to points of entry.

### Territorial Reinforcement

Territorial Reinforcement is the belief that physical design can contribute to a sense of ownership and responsibility for a space. This results in higher actual and perceived levels of risk to potential offenders.

### Territorial Reinforcement Examples

- Use thorny or thick plant materials in perimeter landscape areas to discourage cutting through parking areas, trampling vegetation, approaching ground floor windows or climbing fences and walls.
- Use appropriate signage to discourage trespassers, loitering or consumption of alcoholic beverages.
- Use public art, sculpture, flags and banners where allowed.
- Use physical and symbolic barriers.
- Use City crime prevention programs such as Neighborhood Watch, Business Watch and Partners Against Crime along with appropriate signage.
- Modify surfaces to make tagging (graffiti) or skateboarding more difficult.
- Use landscape lighting to mark territory.

### Law Enforcement Perspective

- Keep foundation plantings low (Reduces hiding areas for potential intruders)
- Do not have foundation plantings that will grow to cover windows (Removes cover for intruders)
- Do not have foundation plantings that form hedges (Removes cover for intruders / predators)
- Do not have plantings near entry / exit areas. ( Eliminates cover for Predators)
- If plantings are tall keep vegetation thinned out to remove predator / intruder cover
- Keep parking areas well lighted

- Make entry / exit areas easily visible to foot / vehicle traffic
- Keep entry /exit areas well lighted
- Try not to install loose items in landscape that can be used as potential instruments of crime
- Use thorny bushes and landscape plantings such as roses, hollies, and barberry. (eliminates potential hiding areas)
- Trees should be kept limbed up and away from the structure as not to obstruct the view of the building from passersby. (reduces predator / intruder cover)
- Multi trunked trees should be kept thinned out and canopies high if planted near the foundation of structures. (reduces predator / intruder cover)
- Do not place large statuary around entrances / exits. (reduces predator / intruder cover)
- Keep all sides of building well lighted or at the least on motion sensitive lighting. (Intruder / predator deterrent. If they can be seen, they won't stay)
- Keep parking area plantings low (reduces predator cover)
- Do not have high burms in areas that reduce building visibility
- Try to avoid fencing that obstructs view. (Privacy type fences keep passersby and security from viewing the area)

## **Appendix B: New Sustainable Sites Initiative with Integrated Security Credit Section**

Safety is the state of being "safe." Merriam Webster defines safety as "the condition of being protected against physical, social, occupational, psychological, educational or other types or consequences of failure, damage, error, accidents, harm or any other event which could be considered non-desirable". Safety is the control of recognized hazards to achieve an acceptable level of risk. This can take the form of being protected from an event or from exposure to something that causes health or economical losses. It can include protection of people or of possessions.

There are two slightly different meanings of safety. For example, home safety may indicate a building's ability to protect against external harm events (such as weather, home invasion, etc.), or may indicate that its internal installations (such as appliances, stairs, etc.) are safe (not dangerous or harmful) for its inhabitants.

Discussions of safety often include mention of related terms. Security is such a term. With time the definitions between these two have often become interchanged, equated, and frequently appear juxtaposed in the same sentence. Readers unfortunately are left to conclude whether they comprise a redundancy. This confuses the uniqueness that should be reserved for each by itself. When seen as unique, as we intend here, each term will assume its rightful place in influencing and being influenced by the other.



In the world of everyday affairs, not all goes as planned. Some entity's steady state is challenged. This is where security science, which is of more recent date, enters. Security is the degree of protection against danger, many types of damage, and or loss through criminal act. Securities as a form of protection are structures and processes that provide or improve security as a condition. The Institute for Security and Open Methodologies defines security as, "a form of protection where a separation is created between the assets and the threat." This includes, but is not limited to, the elimination of either the asset or the threat. Security has to be compared to related concepts: safety, continuity, reliability. The key difference between security and safety is that security must take into account the actions of people attempting to cause destruction.

In looking at security, one can see the differences in between safety and security by the use of certain concepts that tend to recur throughout different fields of security. These concepts range from: assurance, countermeasures, defense, threat/ risk, and vulnerability. The concept of assurance is providing a person with a level of guarantee that security in design will do what is intended to do. Countermeasures are ways in which in a design, the designer, must provide a way to stop a threat from triggering a risk event. The concept of defense in depth is that as a designer of safe and secure places, one can never rely on one single security measure alone. One security measure alone can never cover all aspects or areas of potential threat, so more than one should be used. These potential threats are known as a risk. A risk is a possible event which could cause a loss, damage, intended harm or crime. And last but not least vulnerability. Vulnerability is the weakest point or design element in a targeted area of threat.

## **Appendix C: UNIVERSAL DECLARATION OF HUMAN RIGHTS**

### **ADOPTION OF 1948**

#### **UNIVERSAL DECLARATION OF HUMAN RIGHTS**

Former President of the Inter-American Court of Human Rights

When the General Assembly of the United Nations adopted, on 10 December 1948, the Universal Declaration of Human Rights, in one of the brief spells of enlightenment in the twentieth century, one could hardly anticipate that a historical process of generalization of the international protection of human rights was being launched, on a truly universal scale. Throughout the last six decades, of remarkable historical projection, the Declaration has gradually acquired an authority which its draftsmen could not have foreseen. This happened, not only because of the persons who participated in its elaboration, nor because of the form which was given to that historical document, nor because of the circumstances of its adoption: it happened mainly because successive generations of human beings, from distinct cultures and all over the world, recognized in it a “common standard of achievement” (as originally proclaimed), which corresponded to their deepest and most legitimate aspirations.

Already throughout the travaux préparatoires of the Universal Declaration (particularly in the thirteen months between May 1947 and June 1948), the holistic view of all rights to be proclaimed promptly prevailed. Such outlook was espoused in the official preparatory work of the Declaration, that is, the debates and drafting in the United Nations Commission on Human Rights and subsequently in the Third Committee of the General Assembly. In addition, in 1947, in a contribution to the work then in course in the

Commission on Human Rights, the United Nations Educational, Scientific and Cultural Organization undertook an examination of the main theoretical problems raised by the elaboration of the Universal Declaration; it circulated, to some of the most influential thinkers of the time around the world, a questionnaire on the relations between rights of individuals and groups in societies of different kinds and in distinct historical circumstances, as well as the relations between individual freedoms and social or collective responsibilities.

Some of the answers to the questionnaire singled out the interdependence of all human rights, the guarantee of freedom of the individual in face of the forces of collectivity and of situations of adversity, and the relations between rights and duties. The 1948 Universal Declaration stressed the interdependence of all human rights (civil, political, economic, social and cultural), all inherent in the human person. Shortly after its adoption, conceived as the first of a three-part International Bill of Human Rights (that was to be followed by a Convention – which later resulted in the adoption of the two Covenants – and measures of implementation), the deep ideological divisions of the world of the 1950s led to the categorization of human rights.

It was not until the first International Conference on Human Rights (Teheran, April to May, 1968), two decades after the adoption of the Universal Declaration, that the reassertion of the holistic view and interrelatedness of all human rights (nowadays universally acknowledged) took place, in a world then divided by the bipolarity characteristic of the cold war. Such reassertion, reiterated in successive resolutions of the United Nations General Assembly, has generated a considerable transformation in the treatment of human rights matters at the international level ever since. When the

1968 Teheran Proclamation forcefully advanced the thesis of the indivisibility of all human rights, it was rescuing the basic philosophy underlying the Universal Declaration in this regard.

With the gradual adoption of United Nations sectoral human rights conventions and the operation of several international supervisory organs there under, it was not surprising that, 25 years after Teheran, the Declaration and Programme of Action of Vienna, adopted by the second World Conference on Human Rights (Vienna, June 1993), was marked by the recognition of the necessity to achieve a better coordination of the several international instruments of protection, which had coexisted in the previous two and a half decades. The Teheran Proclamation corresponded to the legislative phase, and the Vienna Declaration and Programme of Action to the implementation phase, of those multiple instruments of protection. Each one is a product and testament of its time.

The second World Conference concentrated its attention on the means to secure the effectiveness of human rights in practice, with special attention turned to discriminated or disadvantaged persons, to vulnerable groups, to the poor and to all those who are socially marginalized or excluded, in sum, to those in greater need of protection. It gave concrete expression to the interdependence of all human rights and their universality (enriched by cultural diversity).

The 1948 Universal Declaration of Human Rights is widely recognized as having inspired, and paved the way for, the adoption of more than seventy human rights treaties, applied today on a permanent basis at global and regional levels (all containing references to it in their preambles). In addition, the Universal Declaration served as a

model for the enactment of numerous human rights norms in national constitutions and legislations, and helped to ground decisions of national and international courts. The Universal Declaration, moreover, is today widely recognized as an authoritative interpretation of human rights provisions of the Charter of the United Nations itself, heralding the transformation of the social and international order to secure the enjoyment of the proclaimed rights.

General awareness was gradually formed of the existence of rights which are inherent in all human beings, which thus pre-exist, and stand above, the State and all forms of political organization. There was general acceptance of the corollary of this, namely that the safeguarding of such rights emanates from the law of nations itself, and is not exhausted – nor can it be exhausted – by the action of States. The international community as a whole, moved by the universal juridical conscience, conferred upon the Universal Declaration the dimension that it has today, recognized in the international case law, incorporated in the domain of customary international law, and gave expression to some general principles of law universally recognized. The Universal Declaration has thus much contributed to render human rights the common language of humankind.

Yet, in this first decade of the twenty-first century, there still remains a long way to go in order to achieve the plenitude of the international protection of human rights. There is great need to conceive new forms of protection of human beings. Virtually all the existing mechanisms of protection were conceived as responses to different kinds of human rights violations. The current concern of international organs of protection, faced with continuing violations of human rights, to develop measures both of prevention and

of follow-up, has its *raison d'être*. Such measures would tend to establish and consolidate a system of continuous monitoring of the observance of human rights anywhere, pursuant to the same criteria. Such monitoring would constitute, ultimately, the response, at the procedural level, of the recognition obtained at the second World Conference on Human Rights in 1993 of the legitimacy of the concern of the whole international community with human rights violations everywhere and at any time.

The advances of the international protection of human rights depend nowadays, to a large extent, on national measures of implementation. The emphasis on such national measures is without prejudice to the preservation of the international standards of protection. In the present domain of protection, international law and domestic law are in constant interaction. It is the international protection itself which requires national measures of implementation of human rights treaties, as well as the strengthening of national institutions linked to the full observance of human rights and the rule of law (*État de Droit*). The application of international norms of protection aims at improving, rather than challenging, domestic norms, to the benefit of all protected human beings. To this, one could add the complementarity between global (United Nations) and regional mechanisms of human rights protection, on distinct continents. Regional systems of protection operate within the framework of the universality of human rights.

The protection of human rights nowadays occupies a central position in the international agenda of the twenty-first century. At the global level, the multiplicity of international instruments in the present domain discloses a fundamental unity of conception and purpose. The 1948 Universal Declaration – the starting point – retains its vigour six decades after its adoption. With remarkable foresight, the Universal Declaration

propounded a particularly comprehensive principle of non-discrimination and called for the transformation of societies in order to secure the effective enjoyment by everyone of the protected rights.

Turning our eyes to the past as well as to the future, it is undeniable that there have effectively been, in these six decades since the adoption of the 1948 Universal Declaration of Human Rights, considerable advances, above all in the process of jurisdictionalization of the international protection of human rights. This is a domain of protection which admits no steps backwards, and which has been contributing, more than any other branch of the law of nations, to the gradual expansion of the material content of *jus cogens*, besides disclosing the pressing need today to consolidate *erga omnes* obligations of protection. Such developments have been due to the universal juridical conscience, as the ultimate material source of International Law, and indeed of all Law. They keep on asserting the universality of human rights at both normative and

Related Materials

United Nations Educational, Social and Cultural Organization, Human Rights Comments and Interpretations: A Symposium edited by UNESCO, with an introduction by Jacques Maritain, Columbia University Press: New York, 1949 (See Appendix I (questionnaire) and Appendix II (report)).

Proclamation of Teheran, Final Act of the International Conference on Human Rights, Teheran, 22 April to 13 May 1968, United Nations Doc. A/CONF. 32/41 (1968).