

ECOLOGICAL DESIGN IN RESORT HOTEL PROPERTIES:
MANAGEMENT PERCEPTIONS OF ECOLOGICALLY
PERFORMATIVE LANDSCAPE PRACTICES

by

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ABSTRACT

ECOLOGICAL DESIGN IN RESORT HOTEL PROPERTIES: MANAGEMENT PERCEPTIONS OF ECOLOGICALLY PERFORMATIVE LANDSCAPE PRACTICES

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It has been argued that in order to bring about society's acceptance of sustainable landscape practices, landscape architects must make them transparent; that is, visible, and ultimately understandable, to the observer. Only when the members of society become familiar with these techniques do they move into the realm of aesthetic acceptability (Thayer 1994; Bohdanowicz 2005). But given that ecologically performative landscapes are often perceived as "messy" (Nassauer 2002, 196), a compatibility issue arises when considering implementation of such visible technologies within landscapes that require a high level of aesthetic refinement.

This research examines perceptions of ecologically performative landscape practices held by general managers in resort hotel properties. These upscale properties offer a unique set of characteristics that make them particularly interesting in the realm of environmental concerns: an extensive amount of impermeable surface area; frequent proximity to natural amenities; high water and energy usage (Bohdanowicz 2005; Huffadine 2000, 84); and an elevated level of aesthetic expectations for the appearance of the resort property (Ayala 1991). To gather perceptions of five ecologically performative landscape practices (permeable paving, green roofs, retention and detention ponds, rainwater harvesting, and graywater

recycling), qualitative methodology was employed to conduct interviews with general managers of seven resort hotel properties in Santa Fe, New Mexico. Transcripts of the interviews were analyzed according to Rogers' (2003, 219-266) theory regarding the diffusion of innovations. The data showed that general managers perceived the five practices as being appropriate for use in resort hotel properties. Concerns were raised regarding space requirements, initial cost, return on investment, city codes, and aesthetics. Some indicated that they preferred keep this type of practice hidden from guests, while others spoke about the importance of letting them be visible, both for the hotel's image and as a positive influence on guests. Overall, perceptions of the practices were favorable, but lack of time for adequate research and cost issues were frequently cited as a barrier to implementation.

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CHAPTER 1
INTRODUCTION
1.1 Introduction

In a resort hotel property, the potential exists for a conflict between stakeholders' aesthetic expectations and the environmental health of the landscape. The landscape surrounding the hotel is expected, along with the architecture and interior design of the building, graciousness of the staff, and luxury of the amenities, to reinforce an experience of escape from daily life. Often this is done through the creation of a "synthetic tropicality" (Gade 1987), using exotic, tropical plants, meticulously maintained grounds, and expanses of turf grass, all of which require high energy, water, and nutrient inputs. Meanwhile, with a growing concern regarding climate change and the need to conserve natural resources, landscape architects are urged to employ landscape practices that play a positive role in the environmental health of the property (ASLA 2008a).

With the introduction of Leadership in Energy and Environmental Design (LEED) by the U.S. Green Building Council (USGBC) in 1998 and an increasing concern for the environment, the hospitality industry has begun to implement ecological initiatives to make their facilities more environmentally friendly. In a survey of more than ten thousand hotels conducted by Smith Travel Research in 2008, twenty-one percent of respondents reported that they are planning to incorporate LEED standards in the next year; twenty percent reported they had done so in the prior year. Popular "green" hotel programs include towel and sheet reuse campaigns, switching from incandescent to compact fluorescent bulbs, recycling efforts, and using non-toxic and recycled materials (American Hotel and Lodging Association). However, there is little evidence in hospitality industry literature that these programs extend to the landscape. Ecologically

friendly landscape practices such as green roofs, bioswales, graywater recycling, and rainwater harvesting are rarely discussed.

Resort hotels were chosen as settings for this study because they offer a unique set of characteristics that make them particularly interesting in the realm of ecological concerns, including a large amount of impermeable surface area, frequent proximity to natural amenities such as beaches or mountains, high levels of energy and water use (Bohdanowicz 2005; Huffadine 2000, 84), and a high level of aesthetic expectations for the appearance of the resort property (Ayala 1991; Sandoval-Strauz 2008; Schwanke 1997).

Santa Fe, New Mexico was selected as the site for this study. As a popular travel destination, it offers a large number of resort hotel properties within a small geographical area. Annual total tourism income in the Santa Fe area is estimated at \$1 billion annually, with 1.2 to 1.4 million visitors every year (www.santafe.org). The hospitality industry is second only to state government as the largest employer in the city (University of New Mexico Bureau of Business and Economic Research). With a total area of 2,019 square miles and a population of approximately seventy thousand, Santa Fe is the fourth largest city in New Mexico.

Santa Fe is situated approximately seven thousand feet above sea level in the Southern Rockies and Arizona/New Mexico Plateau ecoregions, which are primarily composed of pinyon pine and juniper savannas, with grass and shrub coverage leading to coniferous forest at the higher elevations (Griffith et al 2006). Annual precipitation is less than annual evapotranspiration, which contributes to Santa Fe's semiarid climate (Santa Fe County). This results in water shortages that are currently being addressed by the city's future participation in the Buckman Direct Diversion (BDD).

In an effort to retain and enhance the picturesque quality that Santa Fe had become known for, the city began encouraging two standardized architectural styles called Pueblo style and Territorial style beginning in the early twentieth century (Wilson 1997). Pueblo style is characterized by the use of adobe brick architecture with flat roofs, rounded adobe walls in

natural dirt colors, unmilled logs as support for portals (front porches) and canales or roof drains. Territorial also uses some adobe, but draws influences from Greek revival architecture as well, including “faintly classical porches, pedimented lintels, and brick copings” (Wilson 1997). The encouragement of these two styles eventually became mandates enforced by city building codes.

1.2 Problem Statement

Bohdanowicz has written extensively regarding sustainable tourism in Central and Eastern Europe (Bohdanowicz 2003, 2005, 2006a, 2006b, and 2008), exploring various aspects of sustainable tourism with quantitative methods, primarily internet based surveys. Bohdanowicz (2005) acknowledges the scarcity of studies regarding ecological attitudes and initiatives within the hospitality industry. Enz and Siquaw (1999) surveyed the hotel industry’s best management practices in the area of environmental initiatives. This study yields a better understanding of the hotel industry’s current environmental efforts and what it regards as important or effective measures for environmental stewardship.

While numerous books, articles, and papers have been written regarding ecological design of buildings (Van der Ryn and Cowan 1996; Yeang 2006) ecological design literature specific to landscape architecture is more difficult to find. The writings of Thompson and Sorvig (2000) and Lyle (1985) are helpful in understanding what landscape architects and allied professionals regard as useful strategies for environmental landscape design. But neither address landscape architecture-related issues specific to the hotel industry.

Using Rogers’ five attributes of innovation as a framework, this research builds upon existing literature to examine the perceptions that affect the rate of adoption of ecologically performative design practices among decision makers in Santa Fe resort hotels.

1.3 Research Questions

The research questions in this study are:

- (1) What are the perceptions of ecologically performative landscape practices among decision makers in resort hotels in Santa Fe, New Mexico?
- (2) How do perceptions of ecologically performative landscape practices affect their adoption among decision makers in resort hotels in Santa Fe, New Mexico?
- (3) What are the barriers to adoption of ecologically performative landscape practices among the respondents?
- (4) What are the facilitators to adoption of ecologically performative landscape practices among the respondents?

1.5 Research Methods

This research used face-to-face, semi-structured interviews to collect data. The sample consisted of general managers of independent, upper tier, resort hotels located within a ten mile radius of downtown Santa Fe. General managers were selected because they represent either the primary decision maker or a major contributor to decisions regarding landscape within their respective resort hotel properties.

An interview protocol was created to gather information about the respondents' perceptions of ecologically performative landscape practices. First, two questions were asked to establish the kind of experience the respondents strive to create for guests at their properties. Then a set of four identical questions was asked about each of five practices selected for study. These four questions were written to be open ended to allow respondents to offer a narrative of their personal knowledge and perceptions of these practices without limiting them to a finite set of responses. Unscripted follow-up questions were asked when further clarification or additional information was needed.

The interviews were recorded digitally and sent to a professional transcription service for conversion to written text. These interview transcripts were analyzed to identify respondents'

knowledge and perceptions of the ecologically performative landscape practices selected.

Finally, information gathered was analyzed using the five attributes of innovations as defined by Rogers (2003). According to Rogers, there are five attributes that are generally applicable to all innovations, regardless of the industry in which the innovation is found. These are: relative advantage, compatibility, complexity, trialability; and observability. The perceptions among potential adopters of these five attributes influence the rate of adoption of that innovation. Analysis of these perceptions can yield information regarding the potential for adoption among respondents.

1.4 Definition of Key Terms

Albedo. The amount of solar radiation reflected from a material as compared to the amount that shines on the material. Lighter-colored surfaces generally have a high albedo. (Hopper 2007, 250).

Best management practices. The practice or combination of practices used to prevent or reduce non-point sources of pollution in order to meet water quality goals. These practices are designed mainly for reducing runoff and delivery of sediments and nutrients by the runoff (Lee 2008, 18).

Bioretention. A water quality practice that utilizes landscaping and soils to treat stormwater runoff by collecting it in shallow depressions before filtering through a fabricated planting soil medium (Stormwater Manager's Resource Center 2008).

Bioswale. A shallow depression using aggregates or other filtering material and vegetation to infiltrate stormwater runoff and filter out contaminants (Hopman 2007).

Detention pond. A land depression constructed for the purpose of temporary storage of stormwater runoff and gradual release of stored water at controlled rates (SMRC 2008).

Ecological design. Design that minimizes destructive environmental impacts by integrating with living processes to the extent possible (Hopper 2007, 119).

Ecologically performative landscape practices. Landscape strategies that perform a positive function in the landscape, which benefit the ecology of the site (Hopman 2007).

Extensive green roof. A green roof which requires one to five inches of soil depth, uses simple irrigation and drainage systems, and can accommodate many kinds of vegetative ground cover and grasses. This type of green roof adds eight to forty pounds per square foot to the weight of the roof. These are not designed for regular access or use (Environmental Protection Agency).

Frost heave. An upthrust of ground or pavement caused by freezing of moist soil (Zhu 2006, 1).

Graywater recycling. The recovery and reuse of wastewater from building uses such as lavatories, showers, washing machines, and other facilities that do not involve human or food waste (Hopper 2007, 123).

Green roof. Vegetation planted in a growing medium over a waterproofing membrane. Additional layers, such as a root barrier and drainage and irrigation systems may also be included (Environmental Protection Agency).

Innovation. An idea, practice, or object that is perceived as new by an individual or other unit of adoption (Rogers 2003, 12).

Intensive green roof. A green roof which requires a minimum of twelve inches of soil depth, uses complex irrigation and drainage systems, and can accommodate large trees and shrubs. This type of green roof adds eighty to 150 pounds per square foot to the weight of the roof. These are designed for regular access, maintenance, and use (Environmental Protection Agency).

Landscape architect. One whose profession is the art and science of analysis, planning, design, management, preservation and rehabilitation of the land (www.asla.org).

LEED (Leadership in Energy and Environmental Design). A voluntary, consensus-based national standard for developing high-performance, sustainable buildings. (United States Green Building Council).

Permeable paving (also called porous pavement). Pervious surface with an underlying stone reservoir to temporarily store surface runoff before it infiltrates into the subsoil (SMRC 2008).

Pervious. Any material that allows for the passage of liquid through it (SMRC 2008).

Rainwater harvesting. The collection and storage of rainwater from roofs and paved ground surfaces for reuse to irrigate plantings or for a variety of nonpotable applications in buildings (Hopper 2007, 387).

Resort hotel. Typically consists of a luxury hotel with amenities (golf, beach, skiing, and/or spa) that make it a destination in itself (Hotels and Resorts 2007).

Retention pond. A land depression constructed for the purpose of capturing some stormwater runoff in a permanent pool (SMRC 2008).

Stakeholder. The people most affected by the management of a site because their lives are directly affected by what happens to a particular area (Stein 1997, 79).

Sustainability. Meeting the needs of the present without compromising the ability of future generations to meet their own needs (World Commission on Environment and Development 1987).

U.S. Green Building Council (USGBC). A national non-profit that promotes green building practices, technologies, policies, and standards. It established LEED certification guidelines, the country's most commonly used rating system for green buildings (United States Green Building Council).

Xeriscape. A landscaping method with the goal of creating a visually attractive landscape with water-efficient plants (Hopper 2007, 666).

1.6 Limitations and Delimitations

This study focuses on the perceptions of ecologically performative landscape practices in Santa Fe, New Mexico, a semiarid, high desert area of the southwestern United States. More broadly applicable data would have been gathered had the research included resort hotels with

different climates, sizes, and ages. Chosen properties were confined to those located within a ten mile radius of downtown Santa Fe. This limitation kept required travel distances within driving distance from one location, reducing fuel use and cost, as well as allowing all interviews to take place within ten days, the amount of time the researcher had in Santa Fe.

Interviews were conducted with one person, the general manager, at each property. The general manager was chosen because of his or her role in decision making at the properties. However this does give rise to limitations. The level of ecological awareness varies from person to person, so the participants' knowledge about the practices discussed varied. Also, a possibly biased view of the perceptions of ecologically performative landscape practices is given because the study does not gather data from other decision makers' perspectives, such as the owners, regional managers, original architects, landscape architects, or groundskeepers.

Because of the unique nature of resort hotel structures and sites, this research may not be applicable to other types of commercial buildings. Unlike most commercial buildings, hotels are built "to provide comfort and services" twenty-four hours a day (Bohdanowicz 2003). And because hotels never close, they consume more resources and cause greater environmental impacts "than those caused by other types of buildings of similar size" (Rada 1996). Other aspects of resort hotel sites differentiate them from other commercial sites, such as lawns for recreation and events, more paved paths and roads, and paved pool decking and other outdoor surfaces.

Finally, there are some limitations related to the use of Rogers' Five Attributes of Innovations as a framework for this research. It has been noted that diffusion of innovations research tends to have a pro-innovation bias (Rogers 2003), which is the "implication in diffusion research that an innovation should be diffused and adopted by all members of a social system, that it should be diffused more rapidly, and that the innovation should be neither re-invented nor rejected." Given that this study was completed for the requirements of a degree in landscape architecture, the researcher does have a bias in favor of the innovations (or

practices) discussed. Also, previous diffusion of innovations research has tended to study innovations that do not have a strong tie to aesthetics. Because the innovations in this study are being considered within the context of resort hotels, their aesthetic aspects may exert an influence on respondents' perceptions.

1.7 Assumptions

For this research, it has been assumed that the individual who holds the position of general manager at each hotel plays a part in making decisions regarding landscape at their property and that their perceptions of environmentally performative landscape practices affects their willingness to implement them. Furthermore, it was assumed that environmental issues faced by general managers of resort hotel properties in Santa Fe, such as water scarcity and problems resulting from concentrated storm runoff, represent a more extreme set of issues than those faced by general managers of properties in less environmentally-challenged areas.

1.8 Summary

While the hotel industry has started to respond to concerns about climate change with initiatives aimed at reducing their environmental impact, few of these initiatives are landscape-based. One reason could be a discrepancy between a tradition of exotic, highly maintained hotel landscapes and the perception of ecologically performative landscape practices as unattractive. But many of the characteristics of resort hotels that make them desirable destinations also lend themselves well to the use of these practices. As a response to the scarcity of literature regarding landscape-based initiatives within the hotel industry, this research seeks to contribute to the understanding of this discrepancy by focusing on the perceptions held by resort hotel managers regarding ecologically performative landscape practices.

CHAPTER 2

LITERATURE REVIEW

2.1 Introduction

This chapter presents a review of research and literature dealing with environmental initiatives within the hotel industry, the use of ecologically performative landscape practices by landscape architects, and hotel managements' attitudes towards ecological design. It provides the basis for understanding the conflict that could arise between aesthetic and environmental values in resort hotel properties, as well as providing a rationale for the value of this research to landscape architecture and allied professions.

2.2 Ecologically Performative Landscape Practices

2.2.1 Nomenclature

For the purposes of this research, the term *ecologically performative landscape* (Hopman 2007) is used as more precise terminology for what is also referred to as *sustainable landscape*, *environmental design*, and *ecological design* in research and literature included here. Hopman (2007) defines ecologically performative landscapes as “landscapes in complex cultural environments with environmental features that are used to mitigate or even to enhance the environmental footprint of the landscape.” Other terms with similar meanings are more commonly found in relevant literature, but the inclusion of the word “performative” was key to the selection of this term over others. Performative in this context indicates that by virtue of its existence, a landscape element is performing a valuable ecological function. This nomenclature is uncommon, which presents congruency problems when discussing research and literature related to the topic. However, it was chosen over other, more commonly used terms that have similar meanings but present other problems. The term sustainable landscape is commonly

used, but proves to be vague because of the multitude of definitions assigned to it. The Council of Educators in Landscape Architecture (CELA) defines sustainable landscapes as those that “contribute to human well-being at the same time are in harmony with the natural environment;” ones which “do not deplete or damage other ecosystems” (Thompson and Sorvig 2000). The Brundtland Commission defined sustainability as “meeting the needs of the present generation without compromising the ability of future generations to meet their own needs” (Mendler and Odell 2000). And yet another definition of sustainability states that “an ecosystem operates sustainably if its inputs and outputs (of both energy and materials) are balanced over time without substantial loss of nutrients, a situation that can be described as a state of dynamic equilibrium or steady state, although there may be fluctuations” (Yeang 2006). The term ecological design is also commonly used, especially in an architectural context, when describing management of the “interaction of people and environments in the least harmful way possible” (Yeang 2006). This term could be adopted for the purposes of this study by the addition of the word landscape, but because landscape architects, by definition, design to integrate human use with the ecology of a site, it too is not specific enough.

2.2.2 Ecologically Performative Landscape Practices Selected for this Study

This study focuses on five practices that are appropriate for use in ecologically performative landscapes: permeable paving; green roofs; retention and detention ponds; rainwater harvesting; and graywater recycling. These five practices were selected because they address the unique opportunities presented by resort hotel properties.

2.2.2.1 Permeable Paving

Permeable paving, also referred to as *porous pavement*, is a pavement surface that supports vehicular and/or pedestrian traffic and permits stormwater runoff to flow through small voids in its structure; it overlays a “stone reservoir that temporarily stores surface runoff before infiltrating into the subsoil” (Stormwater Manager’s Resource Center 2008). Due to the large amount of surface parking common to resort hotel properties, the use of permeable paving is

worthy of consideration in this context. Issues with permeable paving include those of ongoing maintenance, installation cost, and potential blockage of the voids. In climates that experience frequent snow, as in the case of Santa Fe, permeable paving offers both challenges and advantages. One advantage is that snow melts faster on a porous surface because of rapid drainage below the snow surface (Cahill Associates 1993). This may eliminate the need for spreading of sand or salt on icy surfaces which can lead to another problem, that of clogging or groundwater contamination. Frost heave is another potential problem, but one that can be mitigated through appropriate design (SMRC 2008). Finally, porous paving can cost two to six times more per square foot than traditional asphalt. However, this increase in cost can be offset by the reduction or elimination of the need for a traditional storm drain system (CWP 1998).



Figure 2.1 Example of permeable paving on the left versus impermeable paving on the right.

2.2.2.2 Green Roofs

Green roofs are rooftops that are partially or completely covered with vegetation growing in an engineered soil medium over a waterproof membrane (Taylor 2007). While traditional, low albedo (darker in color) roofs absorb approximately seventy percent of the solar energy that they are exposed to, green roofs absorb far less, resulting in improved insulation and energy consumption of the building. A Canadian study found that a six-inch extensive

green roof reduced heat absorption by ninety-five percent and heat losses by twenty-six percent compared to a traditional, low albedo roof (greenroofs.org).



(a)



(b)

Figure 2.2 Examples of green roofs at (a) Boston's Seaport Hotel, and (b) on a hotel in Germany.



Figure 2.3 A green roof at the Cedar River Watershed outside of Seattle, Washington.

Other benefits of green roofs include retention of rainwater runoff, creation of new wildlife habitat, introduction of additional vegetation to help mitigate the local heat island effect.

Green roofs also have benefits that enhance the building itself, including providing additional acoustic insulation, and contributing to a longer lifespan for roofing materials (Yeang 2006). An increase in insulation addresses one prevalent concern in the hotel industry, that of minimizing sound disturbances within guest rooms. And green roofs can increase the longevity of roofing materials by protecting them from the elements, which can help defer maintenance costs.

2.2.2.3 Retention and Detention Ponds

A *retention pond* is a depression in land created to capture stormwater runoff in a permanent pool. A *detention pond* is similar, providing for temporary storage of stormwater runoff and a gradual release of pooled water into the subsoil and streams (SMRC 2008). Retention and detention ponds can be designed as amenities in the landscape, providing visual, functional, and habitat benefits.



Figure 2.4 Example of a retention pond.

2.2.2.4 Rainwater Harvesting

Rainwater harvesting is the “close-to-source collection and storage of rainwater from roofs, paved surfaces, and landscapes” (Thompson and Sorvig 2000). In a conventional, curb-and-gutter scenario, “when it rains, naturally distilled water falls on buildings. It flows off their impervious roof surfaces, is guided into gutters, is quickly sent into sewers to be combined with human and industrial wastes, and is then taken away at great expense” (Hawken et al 1999). In short, this distilled, “free” water is treated as having no value, to be gotten rid of as quickly as

industrial waste. Not only is the value of the water lost, but additional costs are incurred in the infrastructure needed to remove the water from the property.

Instead of looking upon rainwater as a waste product, there are a growing numbers of businesses and households capturing runoff using rainwater harvesting techniques and offsetting some or all water needs where potable water is not required, such as irrigation or cooling applications. And because runoff is greatly reduced or eliminated, stormwater drain investments are rendered unnecessary, offsetting costs (Hawken et al 1999).



Figure 2.5 Example of rainwater harvesting at Islandwood Learning Center on Bainbridge Island off the coast of Seattle, Washington.

2.2.2.5 Graywater Recycling

Graywater recycling is the recovery and reuse of wastewater from building uses such as lavatories, showers, washing machines, and other facilities that do not involve human or food

waste (Hopper 2007). Dish, shower, sink, and laundry water comprise a large amount of hotel "waste" water which can be reused for other purposes, including landscape irrigation.

2.3 Landscape Architects and Ecologically Performative Landscape Practices

According to the American Society of Landscape Architects (ASLA), a central responsibility of the profession is to "manage and minimize environmental risks to the public's health, safety, and welfare through quality design and planning" (American Society of Landscape Architects 2008a). But Thayer (1994) contends that landscape architects must do more than "manage and minimize risks." They must make sustainable landscapes visible to all because "the visibility of the sustainable landscape ... is critical to its experiential impact and the rate at which it will be adopted by society and emulated in common use." He goes on to say, "a critical function of landscape architecture" is "to continually interpret the relationship of human beings to their environment in spatial, visual terms," that "bringing core ecologies to the surface [is] an important role of landscape artists and designers."

2.4 Negative Perceptions of Ecologically Performative Landscape Practices

What *is* good may not *look* good, and what looks good may not be good.

—Joan Iverson Nassauer

Nassauer (2002) argues that to begin to change public perceptions of ecologically healthy landscapes, site designers must provide "clues to care." Clues to care are elements of a landscape, based on what is familiar, that demonstrate that a landscape has been altered with human intention. They provide a well tended "frame" for a "messy ecosystem."

2.5 Resort Hotel Properties

2.5.1 Why Study Resort Hotel Properties?

Resort hotel properties were chosen as settings for this study because they offer a unique set of characteristics particularly interesting in the realm of ecological concerns: a large amount of typically impermeable surface area in the forms of surface parking and rooftops; frequent proximity to natural amenities such as beaches or mountains; a high level of water and

energy use (Bohdanowicz 2005); and a high level of aesthetic expectations for the appearance of the resort hotel property (Ayala 1991; King 1997).

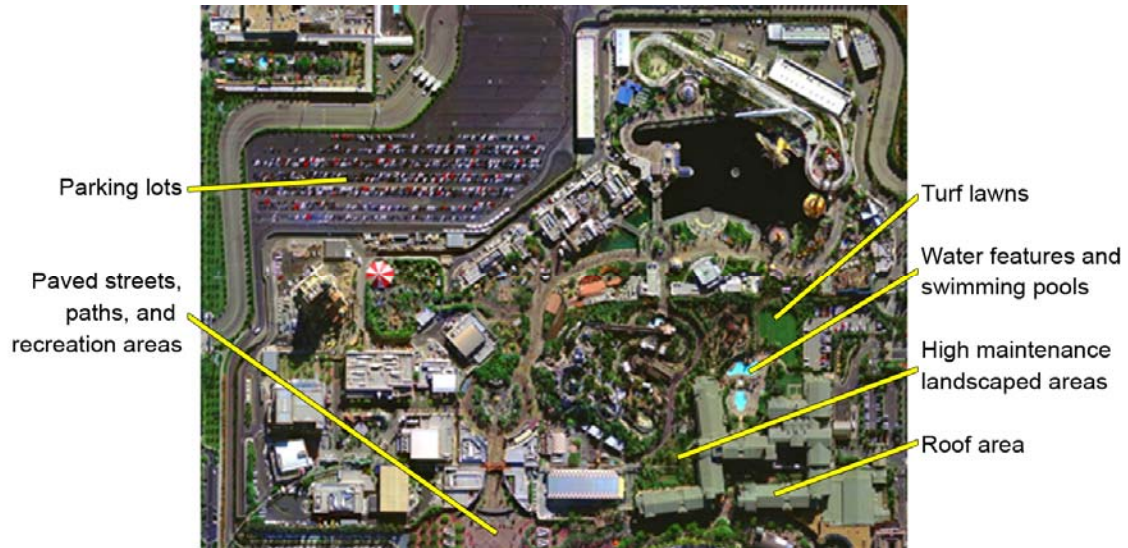


Figure 2.6 Elements of a typical resort hotel property.

Hotels are different from other commercial buildings because they are built “to provide comfort and services” twenty-four hours a day, year round (Bohdanowicz 2003). This means that there is no downtime, resulting in the consumption of “substantial quantities of energy, water, and non-durable products,” and leading to environmental impacts that are “greater than those caused by other types of buildings of similar size” (Rada 1996). Given their unique set of characteristics and relatively high consumption of resources, resort hotel properties are prime candidates for many of the ecologically performative landscape practices that contribute to a sustainable landscape.

2.5.2 *The Role of Landscape in Resort Hotel Properties*

It is the setting that draws the guest for return visits.

—Dean Schwanke

As an important element of the resort hotel property (Schwanke 1997), landscape provides the setting or framework for the built elements of the site, unifying the various

amenities and providing footpaths, roads, and views as linkages. Historically, the gardens, lawns, paths, and other elements of resort landscapes provided a “gradual transition from manicured flora to untamed wilderness” (Sandoval-Strauz 2008). Though resorts are no longer commonly found in “untamed wilderness,” the grounds can still provide a transition: from the “real world” into the created world of the resort.

Landscape materials and features contribute to a cohesive visual identity for resort hotel properties by setting a “design theme” (Grenier 1993) or “flavor” (Ayala 1991). By helping to provide an “impressive visitor experience” (Schwanke 1997), landscape also helps create guest loyalty. In a study among 469 frequent hotel users regarding the “most important benefits delivered by their favorite hotel or best hotel stay,” seventy percent of respondents named the hotel’s public spaces as one of the top ten benefits. This included both “general architecture and landscaping” (Dubé and Renaghan 1999).

2.5.3 Landscape Aesthetics in Resort Hotel Properties

Resort hotels try to create an environment that “will induce a feeling of well-being and enjoyment” by offering an “exotic escape” (Ayala 1991) from “the reality of daily life” (King 1999) into a world of “wealth and fantasy” where “species from foreign or geographically distant lands are [frequently] displayed to convey lushness, exoticism, and privilege” (Ayala 1991).

Ayala (1991) says “...scenery and lushness are among the prime factors that distinguish resort hotels, whose development and marketing strategies have gradually shifted their center of gravity outside the building.” This association of resort hotels with lavish landscaping and exotic vegetation can create a conflict when attempting to implement ecologically performative landscapes, especially in dry climates. And by recreating similar, tropical landscapes in non-tropical locations, resort developers run the risk of “creating a sense of placelessness” (King 1997).

As King (1997) points out, “new technology has allowed tropical resort landscapes to be recreated in unlikely locations,” so why visit a true island resort when “the same can be

experienced close to home, often at much less expense?” Gade (1987) refers to this as “geographical exoticism based on synthetic tropicality.” Indeed, even in desert areas of the American Southwest, many resort hotels advertise the “dense tropical plants” surrounding their pool (from the web site of the Desert Rose Resort in Las Vegas, Nevada), and “tropical oasis style” (from the web site of the Westgate Flamingo Bay in Las Vegas, Nevada). But not all exotic resort landscapes are tropical. The web site of the Paris Las Vegas Resort Hotel invites guests to enjoy their pool “nestled in a manicured French garden.” And even when they get the right type of vegetation for the region, resort hotels can still miss the mark environmentally. For example, Arizona’s Scottsdale Camelback Resort features a two-acre cactus garden with 350 varieties of cacti, some from as far away as Africa and the Galapagos Islands.

2.6 Hospitality Industry Attitudes Towards Ecological Design

2.6.1 Barriers to the Adoption of Ecological Design

Despite the stated goals of the ASLA, Calkins (2005) found that although there is much discussion of sustainable landscapes among landscape architects, “implementation...lags substantially behind discourse,” and landscape architects are not “implementing as many [ecological design strategies] as might be expected.”

In the study, landscape architects mentioned barriers including cost, lack of information, testing, and data to support their recommendations, a lack of time to do the necessary research, and resistance to the practices by stakeholders, other consultants, and code officials “for reasons of ignorance, conflicting values, cost, aesthetics, and function.”

Cost is an ongoing concern in the hotel industry. Bohdanowicz (2003) noted a widespread belief in the hotel industry that “environmental measures are prohibitively expensive,” despite the fact that “it has been shown that such investments are profitable in the longer perspective.” Claver-Cortes, et al. (2007) noted that “only the largest establishments can be said to stand at the forefront of environmental management,” most likely because “small and medium-sized hotels do not have the capital resources or the internal structures required to

conduct environmental management schemes.” They also cited the perception that environmental improvements at a property lead to “a reduction of its profitability” and a reduced “capacity to compete.”

Other concerns that hotel management had about environmental practices were centered around their clients. Questions about how hotel guests might view the “aesthetics of infiltration basins and permeable paving” caused some concern. And some respondents mentioned a less specific fear that these practices may “negatively affect customer comfort and satisfaction” (Bohdanowicz 2003b).

Some practices are simply incompatible with certain climates. For example, properties in arid climates might not be good candidates for green roofs due to difficulties in sustaining them. And permeable paving could prove problematic in northern climates where sand or salts spread on iced-over paving could cause blockage of the voids or contamination of groundwater, respectively.

Other concerns include questions regarding life-cycle cost benefits, insurance issues, and lack of evidence showing clear benefits and good performance (Calkins 2005).

2.6.2 Facilitators for the Adoption of Ecological Design

But there are many reasons for hotel management to look past these barriers and implement environmental practices despite their reservations. Foremost, implementation of environmental practices can improve profitability of the property (Enz and Siquaw 1999). Towel and sheet reuse campaigns lower costs for the water, electricity, detergent, and labor required to change linens for every guest, every day; fluorescent bulbs require fewer replacements; and all initiatives can be (and are) used by the marketing team to enhance the property’s image by tying into the green movement.

Environmental initiatives in hotels seem to have a reciprocal effect with profitability: a hotel that employs environmental practices improves their competitiveness, which results in an improvement in profitability. This in turn enables them to “allocate resources to prevention

oriented techniques and activities that form part of a proactive environmental management” strategy (Claver-Cortes 2007), which in theory would further increase competitiveness, and so on. Indirect benefits to the bottom line include providing excellent marketing opportunities, operating efficiencies, improvements in employee morale and an increased sense of pride in their workplace (Enz and Siquaw 1999).

The industry is beginning to see limited use of green roof construction, graywater reuse, and biofiltration techniques, but an industry-wide embrace of landscape based ecological initiatives are far from widespread. Enz and Siquaw (1999) noted that though many hotels implemented environmental initiatives, a small number were nominated for representing the industry’s best practices. No mention was made of the environmentally performative landscape practices (permeable paving, rainwater harvesting, green roofs, retention and detention ponds, and graywater recycling) that are included in research for the current study. The only landscape-related best practices mentioned in the study were a composting program that uses composted kitchen waste to fertilize its eleven acre property, an irrigation system that was changed from aboveground to underground, and xeriscaping. But the study is useful in understanding what are deemed “best practices” within the hotel industry, and for underscoring the lack of landscape-related ecological design in their thinking.

In an online survey conducted by the American Hotel and Lodging Association in May 2008, hotel managers were asked to rate “the top ten things hotels are doing well, and “the top ten things hotels can improve on.” Not one of the items on either list was a landscape-based initiative. However, when asked to indicate their participation in certain “eco-friendly hotel practices,” just over sixty percent of respondents indicated that they had eco-friendly practices implemented into their landscaping efforts. Because more detail was not provided in the survey, it is not known which practices these respondents had implemented, or how extensive or effective these practices were. However, these results do point to a disconnect between hotel managements’ environmental measures and their actual landscaping efforts.

2.7 Changing Attitudes Towards Ecological Design

While some studies show that hotel managers are hesitant to adopt environmental measures based on concerns related to guest acceptance (Bohdanowicz 2003b), other studies show an increasing acceptance and demand for these practices among guests. Among hotels that have become “environmentally friendly,” one of the top three reasons given is a greater demand for “green” operations from their guests, along with increased government regulation and a belief that it is the “right thing to do” (Enz and Siquaw 1999).

Laypersons in general are showing an increase in knowledge about environmental practices, and have become more aware of the need for them. In a survey which asked landscape architects about the level of interest in water efficient design among their clients, one respondent said, “The benefits of thoroughly integrated runoff reduction and water harvesting and re-use technologies are becoming increasingly understood and desired” (ASLA 2008b).

This awareness extends to the places people stay when they travel (Bohdanowicz 2006a). A greater respect for, and understanding of, environmental issues has increased the demand for accommodations that reflect these values. And in fact, a hotel’s competitiveness in the overall market can be damaged among potential guests if there is no evidence of environmental measures at the property (Claver-Cortes 2007). Miller and Washington (2007) cite a survey in which travelers rank “eco-friendly or green programs among the top ten most desirable features” they look for in a hotel. Bohdanowicz (2003b) found that not only did seventy-five percent of European hotel guests express their “support and willingness to participate in many [environmental] initiatives,” but twenty-five percent went further to say that they would be willing to pay more for “accommodations in an eco-certified facility.”

By implementing environmentally performative landscape practices, hotel management can respond to an increasing demand for environmentally friendly accommodations, and remain competitive on that front. Furthermore, they can enhance guests’ knowledge of environmental practices which could lead to an increase in implementation at home. As Thayer (1994) says,

The small steps taken to build sustainability into the local landscape in discreet, manageable chunks which people can observe, try out, experience, and improve, are actually large steps for humankind [towards creating] a sustainable world (189).

2.8 Summary

Chapter Two reviewed research and literature pertaining to various elements that could create a conflict between aesthetics and environment within the context of resort hotel properties. In addition, this chapter illustrated that although ecologically performative landscape design is an important part of landscape architecture, there are barriers to implementation stemming from perceptions of costs and aesthetics.

CHAPTER 3
RESEARCH METHODS

3.1 Introduction

This research used face-to-face interviews to collect data. The sample included resort hotels located within a ten mile radius of downtown Santa Fe classified as “Independent, Upper Tier” properties by Smith Travel Research. As a popular travel destination, Santa Fe offered multiple resort hotels within a limited geographical area. Semi-structured, face-to-face interviews were used to collect information about the respondents’ perceptions of ecological landscape design practices from the general manager of each selected property. General managers were selected because they represent either the primary decision maker, or a major contributor to decisions made regarding landscape design practices within their respective resort hotel properties. A conversational, open-ended interview allowed respondents to offer a narrative of their perceptions and attitudes towards these practices without limiting them to a finite set of responses which would have been the case had a quantitative survey been used.

The interview transcripts were analyzed to identify respondents’ perceptions of ecological landscape design, which were then matched up with the five attributes of innovations as defined by Rogers (2003). Rogers states that an innovation will have a higher rate of adoption if it: is perceived to have a relative advantage over existing strategies; is compatible with existing beliefs and values; is not perceived as being too complex; can be tried on a small scale first; and can be seen in place and working in other situations.

3.2 Research Perspective

Rogers states that regardless of the industry or field in which the innovation is found, there are five variables that contribute to the rate of adoption of any innovation:

- 1) Perceived attributes of innovations;
- 2) Type of innovation-decision;
- 3) Communications channels;
- 4) Nature of the social system; and
- 5) Extent of change agents' promotion efforts.

This research is concerned with the first variable, "Perceived attributes of innovations," a category which can be further broken down into five attributes that are generally applicable to all innovations, regardless of industry:

- a) Relative advantage;
- b) Compatibility;
- c) Complexity;
- d) Trialability; and
- e) Observability.

3.2.1 Relative Advantage

Relative advantage refers to "the degree to which an innovation is perceived as being better than the idea it supersedes" (Rogers 2003). This includes improvements in profitability, performance, status, etc. When analyzing the interview transcripts, the researcher looked for indications that the respondent felt that the practice being discussed offered some sort of an advantage to his or her property in terms of status (the Automobile Association of America's Four Diamond Award, for example), return on investment (the cost of rainwater harvesting offset by savings on water for landscape, for example), or increased competitiveness among potential guests (appealing to young adults who show more interest in environmental issues, for example).

3.2.2 Compatibility

Rogers defines compatibility as “the degree to which an innovation is perceived as consistent with the existing values, past experiences, and needs of potential adopters.” By this definition, an innovation with high compatibility would be less “unknown” to the potential adopter which would lead to a greater rate of adoption. During the analysis phase, the researcher noted perceptions about compatibility of the practices with the hotels’ climate, space limitations, beliefs of the general managers and owners of the property, aesthetics, guest expectations, and zoning restrictions.

Zoning restrictions tie into Santa Fe’s history as a tourist destination. In the early nineteenth hundreds, the city started to encourage two specific architectural styles, Pueblo and Territorial, which reinforced the picturesque quality Santa Fe had become known for (Wilson 1997). This encouragement led to zoning restrictions and the delineation of various “townscapes” within the city. Santa Fe defines townscapes as “the interrelated elements of the urban landscape including the physical setting, street patterns, watercourses, vegetation, building placement, building height, scale, wall types and prominent views” (City of Santa Fe). These townscapes include historic districts, in which the appearance of architectural structures and surrounding grounds are strictly regulated.

3.2.3 Complexity

Complexity is “the degree to which an innovation is perceived as relatively difficult to understand and use.” A high level of perceived complexity will lead to a reduced rate of adoption. Upon analyzing interview transcripts, the researcher found that some respondents had researched a practice but then abandoned the idea. It was also noted that some general managers perceived the practices as requiring extensive research in order to implement effectively, but found themselves unable to do the research due to lack of time and the demanding nature of their jobs.

3.2.4 Trialability

Trialability is “the degree to which an innovation may be experimented with on a limited basis.” Rogers (2003) states that the trialability of an innovation contributes to a greater rate of adoption. No perceptions related to the trialability of the five selected practices were noted upon analyzing the transcribed interviews. However, one respondent discussed planting perennial instead of annual plant selections in large planters and experiments with attempting keeping them alive during the winter months.

3.2.5 Observability

Finally, observability is “the degree to which the results of an innovation are visible to others” (Rogers 2003). Rogers associates greater observability of an innovation with a greater rate of adoption. Traditionally, observability would refer to the ability for a member of the social system being studied (in this case, the general managers of resort hotels) to see the innovation (or practice) implemented and working so that it might influence him to adopt the practice himself. However, due to the nature of the hotel business, most of the perceptions relating to the observability of the selected practices were about observation by guests. Because observability by guests also means that the practice would be observable by other hotel managers, these perceptions are taken to be valid in assessing an impact on adoption.

Analysis of interview transcripts found multiple references to the observability of practices such as retention ponds and green roofs that the respondent had seen implemented in other resort hotel properties. As stated above, these properties also have an opportunity to demonstrate environmentally sound practices to hotel guests. Some of the respondents specifically mentioned that their property kept certain practices hidden from guests (underground cisterns for rainwater harvesting, for example) while others thought it was a good idea to keep the practices visible to show the guests how they reuse graywater, for example.

3.3 Research Design

Rogers identifies eight types of research that have their basis in diffusion theory. The majority (fifty-eight percent of studies) of diffusion research is concerned with the characteristics of the individual and how they affect the rate that he or she adopts an innovation. Based on these characteristics, the individual is identified as belonging to an adopter category: innovator; early adopter; early majority; late majority; or laggard. Other popular types of diffusion research are concerned with the communication channels used to distribute information about an innovation (seven percent of studies), the innovation decision process (five percent of studies), and the role of opinion leaders in diffusion networks (three percent of studies). Relatively little research (one percent of studies) has been done regarding how the rate of adoption of an innovation is affected by the perceptions of its attributes.¹ However, Rogers states that this “type of research can be valuable in predicting the reactions of people to an innovation.” This research uses diffusion theory as a framework or organizing tool in which to identify and evaluate perceptions of ecological landscape design innovations, and how these perceptions affect their rate of adoption among the sample community.

3.4 Interview Protocol

The interviews were conducted using a semi-structured approach with open-ended questions. After identifying the sample properties and gathering contact information and entrée, appointments were scheduled to conduct interviews and collect data. All interviews were recorded with a Sony Digital Voice Recorder and then submitted to Escription.com for a verbatim transcription. The meetings were conversational in nature. Although the interview script served as a guide to learn about the decision makers’ perceptions, subjects were not limited to discussing only the questions in the script.

¹ Twenty-two percent of diffusion studies are categorized as “Other.”

3.5 Research Questions

The research questions in this study are:

- (1) What are the perceptions of ecologically performative landscape practices among decision makers in resort hotels in Santa Fe, New Mexico?
- (2) How do perceptions of ecologically performative landscape practices affect their adoption among decision makers in resort hotels in Santa Fe, New Mexico?
- (3) What are the barriers to adoption of ecologically performative landscape practices among the respondents?
- (4) What are the facilitators to adoption of ecologically performative landscape practices among the respondents?

3.6 Research Sample

The research sample consisted of seven resort hotels located within a ten mile radius of downtown Santa Fe. Santa Fe was selected as the location for the study for several reasons. First, because Santa Fe, as a popular vacation destination, offers a relatively high number of resort hotels within close proximity to each other. This helped ensure all properties were located within a similar climate and a common ecosystem. Second, Santa Fe represents a community with a high level of water concerns, due to its semiarid climate in which more water is lost through evapotranspiration than falls as precipitation. Therefore, there is a large reliance on groundwater and water purchased from surrounding communities to meet the needs of the city. And finally, the concentration of the sample group into one geographical location enabled the completion of interviews within a reasonable amount of time.

Identification of the sample resort hotels occurred by first creating a list using a database provided to subscribers to Smith Travel Research, a leading information and data provider in the lodging industry. This list included all Santa Fe area accommodations falling into the classification of "Independent - Upper Tier" and located within ten miles of downtown Santa Fe. Because Smith Travel Research does not have a resort category, a search was performed

for Independent, Upper Tier properties within ten miles of downtown Santa Fe. This designation captures all resorts not associated with a corporate brand, such as Hyatt or Marriott. Independent properties were chosen to eliminate corporate brand standards and mandates as an element of influence on decisions of the general managers of sample properties.

From this list a working set of hotels was identified that fell within a set range for certain characteristics. Parameters were set for location, type of property, and number of guest rooms. The properties had to be located within ten miles of downtown Santa Fe. All properties that were not traditional resort hotels were eliminated due to a difference in management structure. And hotels with fewer than fifty rooms were eliminated because they represent smaller-scale, boutique operations with different foci, leaving properties with room totals from sixty-five to 157. To ensure additional properties that met the criteria were not being overlooked, the Smith Travel Research list was then compared to a list generated on the customer-driven travel information website, TripAdvisor, for all five star hotels in Santa Fe. In the research, a numbering system was used to protect the identity of the selected properties.

Table 3.1 Properties Included in this Study

	Size of Property (rounded to nearest half acre)	Age of Property	Number of Rooms
Property One	250 acres (resort located on ten core acres)	90 years	127
Property Two	3.5 acres	33 years	134
Property Three	2 acres	23 years	72
Property Four	1.5 acres	43 years	107
Property Five	5 acres	68 years	157
Property Six	57 acres	0 years	65
Property Seven	5 acres	72 years	86

After selecting the sample properties, the next step was to identify the appropriate decision makers at the hotels and request their participation in the research. A telephone

conversation occurred between the researcher and the general manager of one of the selected sample properties wherein the researcher requested assistance in identifying and gaining entrée to other general managers at the selected properties. It was prior knowledge of the researcher that this individual had worked in the Santa Fe hospitality sector for many years, and had an extensive network of contacts with others in the area. The researcher also requested that the inquiry be forwarded to others who might be able to assist in gaining entrée to the selected properties. A series of follow-up telephone conversations were needed to gain clarifications and additional information.

3.7 Bias and Error

While the selected resort hotel properties do have similarities, there is variation in exact size, age, and topography. All selected hotels fall into the “Independent – Upper Tier” category as designated by Smith Travel Research. Another potential difference is microclimate. Although all properties are located within the Santa Fe city limits, and within the Santa Fe ecosystem, variations in topography, elevation, vegetation amounts and placement, and orientation contribute to a unique microclimate for each site.

One criticism of diffusion of innovations research is that it tends to have a pro-innovation bias (Rogers 2003). This is the “implication in diffusion research that an innovation should be diffused and adopted by all members of a social system, that it should be diffused more rapidly, and that the innovation should be neither re-invented nor rejected.” Given that this study was completed for the requirements of a degree in landscape architecture, the researcher does have a bias in favor of the innovations (or practices) discussed. This should be taken into account in evaluating the results and implications in the following two chapters.

CHAPTER 4

RESULTS AND DISCUSSION

4.1 Introduction

Interviews were conducted with general managers of resort hotel properties in Santa Fe, New Mexico to gather their perceptions of five ecologically performative landscape practices (permeable paving, green roofs, retention and detention ponds, rainwater harvesting, and graywater recycling). Transcripts of the interviews were analyzed according to Rogers' (2003) theory regarding five attributes of innovations that affect the adoption rates of the innovations or practices. The data showed that general managers overall perceptions of the five practices were favorable regarding appropriateness for use in resort hotel properties. However, concerns were raised regarding space requirements, initial cost, return on investment, city codes, and aesthetics. Some respondents stated that they thought this type of practice should remain hidden from guests. Conversely, others spoke about the importance of letting the practices be visible, as a positive influence on both the hotel's image and on guests. Lack of time for adequate research as well as concerns about costs were frequently cited as a barrier to implementation.

4.2 Analysis of the Interviews

Interviews were digitally recorded using a Sony Digital Voice Recorder. These digital files were sent via file transfer protocol (FTP) to a Santa Monica, California based company called Escriptionist.com² for transcription. Employees of Escriptionist.com transcribed the interviews and e-mailed them to the researcher in the form of Microsoft Office Word documents.

The researcher read the interviews, searching for indications of perceptions related to the Rogers' five attributes of innovations (2003). Related perceptions from all respondents were

² Escriptionist.com changed its name to Verbalink.com in Fall 2008.

grouped according to ecologically performative landscape practice and analyzed for recurring themes and pertinent details.

4.2.1 The Role and Importance of Landscape in the Sample Properties

Two introductory questions were asked about the importance of landscape at the respondents' properties.

1. What type of experience do you try to provide for your guests?
2. How does the exterior setting of your property contribute to this experience?

In response to the first question regarding the type of experience they try to provide for their guests, three respondents described their efforts in terms of the type of hotel property that they manage. Respondent One said that his property tried to provide a "...full resort experience...complete and well rounded." At Respondent Four's property, "...guest service is our number one priority..." And Respondent Six described the experience at his property as "...an ultra luxury experience."

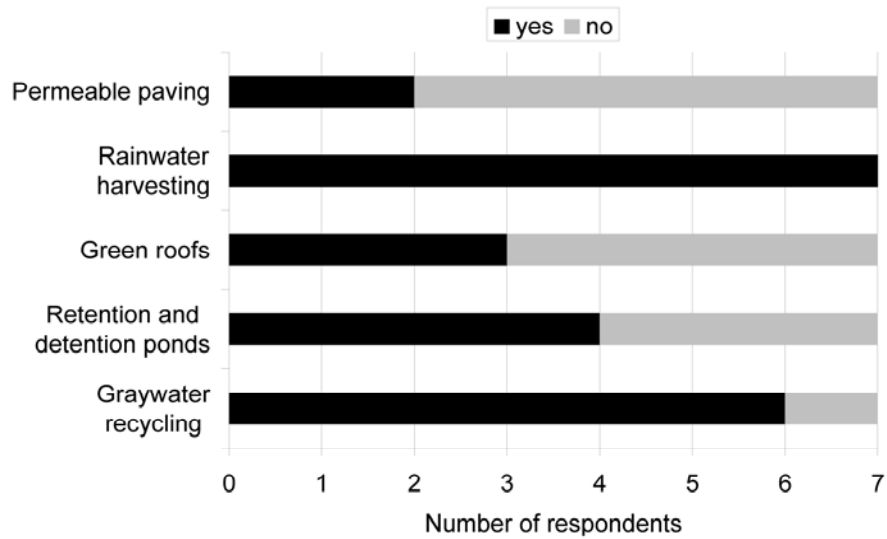
Conversely, two respondents tried to tie into the comforts of home. Respondent Four said, "...we try to...make them comfortable as though they are guests in our own personal living room..." and Respondent Seven said, "We try to provide an experience that is like home. Casual, not corporate, not so studied like the competition."

Other responses included efforts to "...make memories...tied to the senses [of] smell, sight, sound," and "...mix a lot of different elements of Santa Fe...the history is definitely a major part of it."

In response to the second question, all respondents thought that landscape played an important role in the creation of the experience they were trying to provide for their guests, describing it as "very, very important to the overall experience," and "really enhanc[ing] the overall guest experience," "play[ing] a vital role" in the effort to "provide for a very authentic look," "the landscaping is designed to give a sense of peace and tranquility and...make them feel as though they're in a garden setting," and that "[landscape contributes] in a major way" to

an “ultra luxury experience.” One respondent also commented on the important role landscape plays in marketing her property, “[Our marketing photographs] show the different seasons. In spring there’s a lot of color, in the fall...you feel that it’s almost kind of cold because you see the trees turning.”

Table 4.1 Respondents’ Familiarity with Selected Practices³



³ See Appendix C for responses by individual respondents.

Table 4.2 Respondents' Opinions Regarding Appropriateness of Selected Practices in Resort Hotels

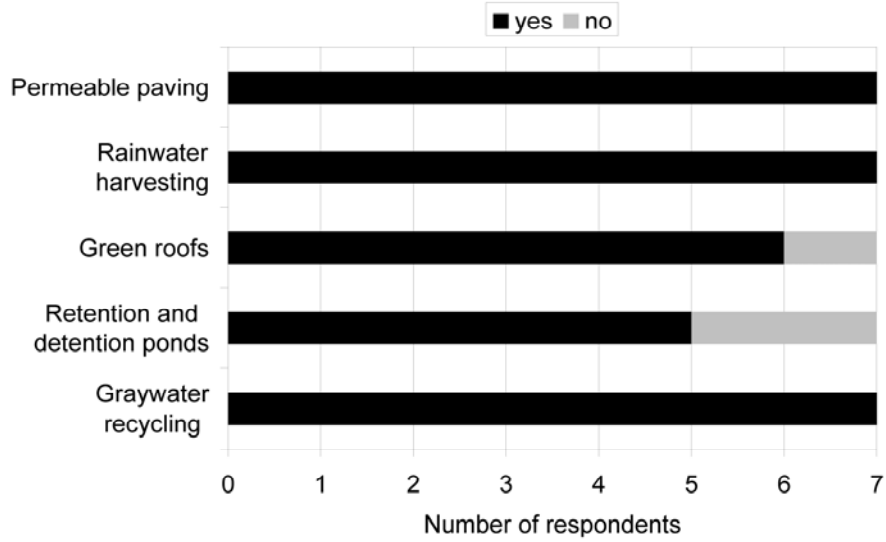
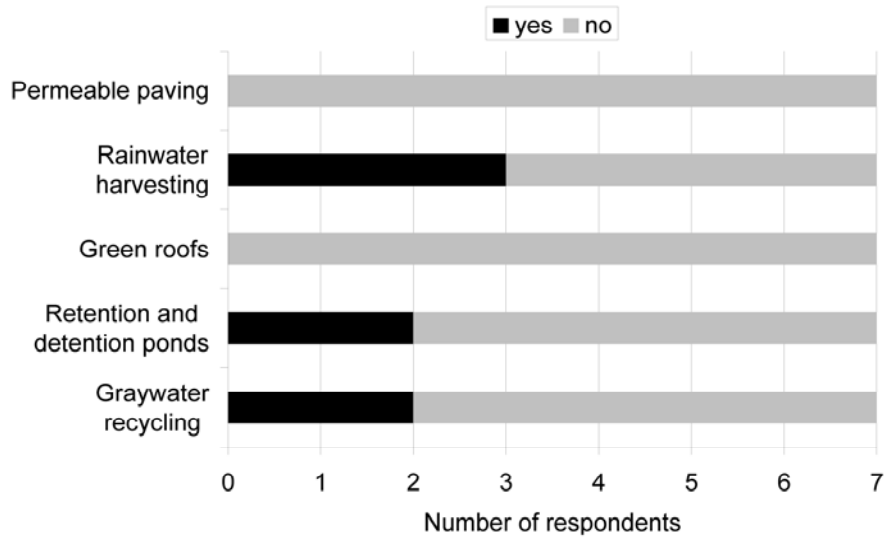


Table 4.3 Current Use of Selected Practices in Respondents' Properties



4.2.2 Permeable Paving

The first set of practice-related questions dealt with permeable paving.

1. Are you familiar with permeable paving?
2. Please describe permeable paving as you understand it.
3. Have you used permeable paving at your property?
4. Is permeable paving appropriate for use in a resort hotel property? Please explain why or why not.

Out of the seven respondents, only two described themselves as being familiar with permeable paving. Of the remaining five, one was somewhat familiar and four had no knowledge of the term. These five required that a definition be read to them prior to answering the question regarding appropriateness of use in resort hotel properties.

All seven respondents viewed permeable paving as appropriate for use in this type of property, though two had reservations. One respondent felt that permeable paving might not be as appropriate for use in a climate that receives regular snowfall as it might in a warmer climate such as Florida. The other respondent thought it was appropriate as long as it used materials that were harmonious with their surroundings.

None of the respondents' properties had permeable paving implemented on site. However, one property responded that they used gravel as the surface for about half of their parking needs in order to retain any rainwater that falls on their property.

4.2.2.1 Perceptions of Relative Advantage Regarding Permeable Paving

Cost concerns were frequently mentioned regarding all of the selected practices. This is related to relative advantage in that general managers try to minimize spending in order to maximize profits. Respondent Two was not familiar with permeable paving prior to having the definition read to him. Upon hearing the term defined, he did not explicitly say that he perceived permeable paving as expensive, but expressed concerns about cost, saying "If it is cost effective, then sure...it would be useable at [a] resort."

4.2.2.2 Perceptions of Compatibility Regarding Permeable Paving

The comments of two respondents indicated perceptions of permeable paving related to compatibility. One was a positive association with the practice in Santa Fe and one was negative. Respondent Five spoke about his perceived compatibility of permeable paving with the traditional rain gutters used in Santa Fe and the southwest, canales. "... [T]he canales here in Santa Fe, they drop [water] basically anywhere that they're built to drop...So it would particularly help in those areas where it would give [water] someplace for it to go..." However, Respondent Three thought permeable paving would not be compatible with the locale climate, saying that in "...someplace [they don't experience] the four seasons as specific as we do," permeable paving would be "easier to maintain...Florida seems more of an area where year-round that could be maintained."

Three other respondents spoke about perceptions of the compatibility of permeable paving with their specific properties. Respondent Three's issue was with the age of her property and whether permeable paving would be the best use of their monetary resources, "When you have a property that's twenty-three years old...when you're landscaping, [you] look at all the ways to conserve water and not just for the pricing but also for what our beliefs are here. But to pull of the existing concrete and the things that were done twenty-three years ago...it's not the best use of our money..." Respondent Four's comments spoke to the way his property has very little landscaping on the ground level, "In my case...very few of my plants are on ground level. They're all up on the sides of the building. If, however, I had a parking lot where I had multiple areas around it, like islands of flowers...I could imagine it being...extremely applicable." Finally, Respondent Six had concerns about the aesthetic compatibility of permeable paving with his property, "I think it would just totally depend on the materials and how they're blended and what the appearance is."

4.2.2.3 Perceptions of Complexity Regarding Permeable Paving

Only one respondent voiced the perception of complexity regarding permeable paving. When asked if permeable paving was appropriate for use in a resort hotel property, Respondent Two seemed to want more explanation about the benefits of the practice, saying, “I don’t understand how the retention of water in the reservoir will assist...the environment, because ultimately it will have to go to the reservoir anyway.” With little information about the benefits of permeable paving, the respondent was attempting to “fill in the blanks.”

4.2.2.4 Perceptions of Trialability Regarding Permeable Paving

No perceptions pertaining to trialability associated with rainwater harvesting were found in the interview transcripts.

4.2.2.5 Perceptions of Observability Regarding Permeable Paving

No perceptions pertaining to observability associated with rainwater harvesting were found in the interview transcripts.



Figure 4.1 Gravel parking surface at Property Seven.

4.2.3 Rainwater Harvesting

The second set of questions was regarding rainwater harvesting.

1. Are you familiar with rainwater harvesting?
2. Please describe rainwater harvesting as you understand it.
3. Have you used rainwater harvesting at your property?
4. Is rainwater harvesting appropriate for use in a luxury resort hotel property? Please explain why or why not.

All seven respondents were familiar with rainwater harvesting. Given the semi-arid climate of Santa Fe, scarcity of groundwater, and Santa Fe city codes regarding rainwater capture, this was not surprising. One respondent, who spent his childhood in Germany, exhibited the greatest familiarity with the practice, and discussed the prevalence of the practice in that country.

All seven respondents also viewed rainwater harvesting as appropriate for use in resort hotel properties. But the general manager of Property Three had concerns regarding the aesthetic appearance of rain barrels, stating that they are “not very pretty,” “huge,” and “in your face.” She expressed frustration that a more attractive alternative had not been made available. At the other end of the spectrum, the respondent at Property Seven said that they often received complements on the rain barrels they use at their property, and inquiries from guests asking where they could get similar rain barrels for their homes.

Three of the seven properties currently use some form of rainwater harvesting. The most elaborate example of this practice among the sample properties is located at Property Six where they use underground cisterns to collect up to 150,000 gallons of rainwater. This property is by far the newest in the sample, having opened in August 2008. It is the second largest property in terms of acreage, with fifty-seven acres.

Property One, which at ninety years old is the oldest property in the sample group, uses a series of ponds connected by streams and man made waterfalls to harvest rainwater. This water is used on site for their landscape watering needs.

Finally, Property Seven uses the simplest form of rainwater harvesting employed by the sample properties. They use thirty rain barrels to harvest rainwater which are placed throughout their property. This captured water is used for their landscape watering needs as well.

4.2.3.1 Perceptions of Relative Advantage Regarding Rainwater Harvesting

When asked how he was aware of guest interest in rainwater harvesting, Respondent One spoke of staying informed about guest interests by reading magazines and newspapers popular with the “X” and “Y” generations, his target demographic. Because they have the potential to influence a traveler to choose his resort hotel over another, he perceived the practices written about in these publications as giving his property relative advantage over competitors. No other respondents voiced perceptions pertaining to relative advantage associated with rainwater harvesting.

4.2.3.2 Perceptions of Compatibility Regarding Rainwater Harvesting

A related implication to Respondent One’s comments discussed in section 4.2.3.1 is that if his property is implementing practices that his target demographic is interested in, not only does he perceive rainwater harvesting as having relative advantage, but he also perceives it as being compatible with the beliefs of his customers.

Although she thought that rainwater harvesting was appropriate for use in resort hotel properties, Respondent Three perceived a discrepancy between the aesthetics of rain barrels commonly used to collect harvested rainwater and the aesthetic needs of the property.

Having enough space to implement the practices being studied was a recurring concern. Respondent Five said utilization of rainwater harvesting was appropriate for use in

resort hotels, though “it depends of storage...where are you going to store water...until [you use it]?”

4.2.3.3 Perceptions of Complexity Regarding Rainwater Harvesting

No perceptions pertaining to complexity associated with rainwater harvesting were found in the interview transcripts.

4.2.3.4 Perceptions of Trialability Regarding Rainwater Harvesting

No perceptions pertaining to trialability associated with rainwater harvesting were found in the interview transcripts.

4.2.3.5 Perceptions of Observability Regarding Rainwater Harvesting

The majority of perceptions of rainwater harvesting related to observability indicated that while all seven respondents viewed it as appropriate for use in resort hotels, most of them did not think the practice should be visible to guests. For example, Respondent Two said, “due to the fact that it was not affecting the guests, we would not share this information...Had it had an impact on guests we would've surely shared the information.” Respondent Three had concerns about aesthetics, saying that rain barrels are “not very pretty...the barrels are so huge and [its difficult] trying to find space that you can actually have it kind of not be so in your face.

And at the property managed by Respondent Six, cisterns “are completely underground and invisible.” This affects the rate of adoption adversely as other hotels in the area have fewer opportunities to observe various methods of rainwater harvesting in place and functioning.

However, Respondent Seven had no reservations about the appearance of rain barrels and even fielded requests for more information about them, “We’ve got thirty barrels around the property which we put directly into the gardens. People are always asking where we get the barrels, can I use I at my house?”

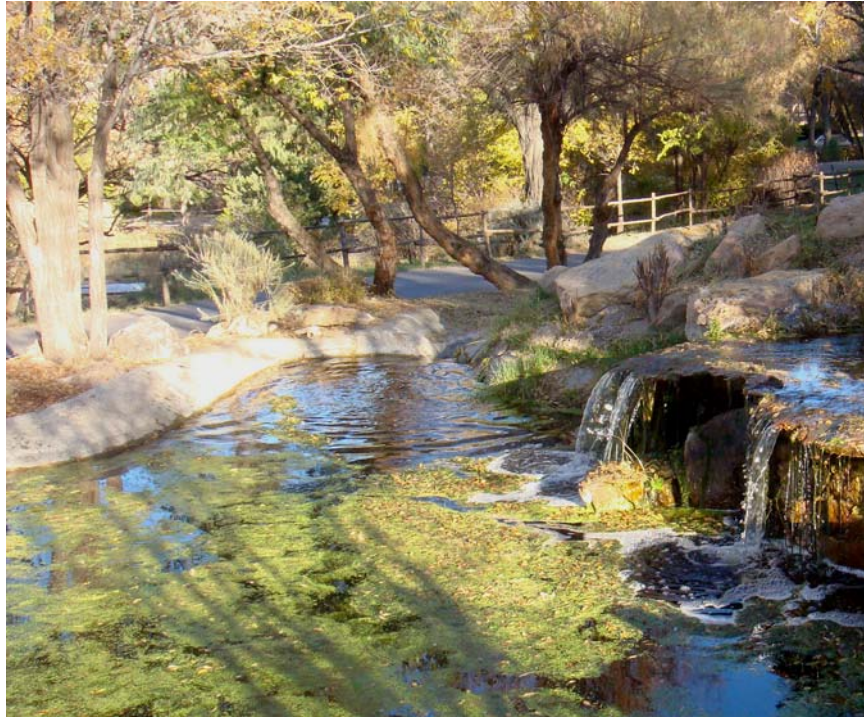


Figure 4.2 Rainwater harvesting at Property One.

4.2.4 Green Roofs

Of the seven respondents, three were familiar with green roofs. One of these three had lived in Germany during childhood and was familiar with green roofs due to their prevalence and history of use in that country. The remaining four were unfamiliar with green roofs and required that a definition of the term be read to them before being asked if they thought green roofs were appropriate for use in resort hotel properties. Upon hearing the definition, one respondent drew an association with rooftop gardens, a term he was familiar with. This respondent expressed surprise that green roofs offered potential benefits to the building structure (additional insulation and a longer lifespan for roofing materials, for example).

All but one of the respondents viewed green roofs as appropriate for use in resort hotel properties. The one who felt they were not appropriate cited zoning restrictions. Her property is

located in a designated historic district and she did not think green roofs would be allowed by code officials. None of the seven respondents had green roofs implemented on their properties.

4.2.4.1 Perceptions of Relative Advantage Regarding Green Roofs

Just one respondent, Respondent Four, indicated a perceived relative advantage related to green roofs. His perceptions were related to both a benefit to profitability (green roofs could be “helping with energy savings, because as we all know, electricity and gas is going through the roof”) and an improvement in competitiveness among guests due to an aesthetic enhancement to a set of rooms, saying “I’m already thinking of...a series of rooms where the people have to look out over the roof, and they’re wonderful rooms and we keep it clean, but if I have flowers there instead, I’d be a happy man.”

4.2.4.2 Perceptions of Compatibility Regarding Green Roofs

Having spent his childhood in Germany, Respondent Two spoke about the lack of compatibility of green roofs with current attitudes towards resource use and conservation in the United States. “I have a friend who is an engineer for that specifically. And I say, “Green roofs, what are you talking about?” And so, you know, while we’re walking, you know, he tries to explain it to me, and that conversation took place, I don’t know, fifteen years ago. So the United States of America has to learn how to use its resources better and to reuse the resources that it has already used in order to gain more use out of them.”

Respondent Three perceived green roofs as incompatible with local codes, saying “I don’t think the city would allow us to do it...because we’re in the historic district. It’s not a traditional historic look for the small casitas that we have. If we try to change anything...it has to go through the historic review. I’ve been looking at other things for sustainability that are more immediate.”

Respondent Five had a positive perception regarding the compatibility of green roofs with resort hotels in Santa Fe. He spoke about their compatibility with the prevailing (and code-enforced), flat-roofed, pueblo style architecture found in Santa Fe. In our property it could work,

you know with the flat roofs that we have. It's more just about the structure and whether it can support it."

4.2.4.3 Perceptions of Complexity Regarding Green Roofs

A better understanding of green roof technology was needed by two respondents before they would be confident that implementation of the practice would not cause problems, and the resulting expenditures to remedy them. Respondent Four said, "...the idea of putting something up there that could require water is contradictory to what we try [to] prevent. However, I'm very open-minded, as long as I understood the benefits." And Respondent Seven said, "[a green roof] might be appropriate as far as going green, but not appropriate from a cost standpoint. It would be cool...if we felt there was no way for it to cause any problems we might consider it, but cost is a major concern."

4.2.4.4 Perceptions of Trialability Regarding Green Roofs

No perceptions pertaining to trialability associated with green roofs were found in the interview transcripts.

4.2.4.5 Perceptions of Observability Regarding Green Roofs

Respondent Four spoke about the positive influence observable green roofs might have on guests, saying, "I think as guests are becoming far more savvy to hotels and resorts impact on the environment, you know, right now there's an ongoing campaign to prevent water usage. And that's educating them, and I think then to see a hotel that has incorporated their roof space into a positive environment impact is a great idea."

And Respondent Six had positive perceptions of green roofs relating to another resort hotel property located in California, saying "...have you ever been to the Post Ranch Inn...It's in Big Sur. It's a really, really cool place, and they're very environmentally conscious...they've built rooms literally right into the cliff... the roof kind of comes over it. And so you literally are living underground...they've done some really cool technologies like that."

4.2.5 Retention and Detention Ponds

Three respondents were familiar with retention and detention ponds. Of these three, one property has a series of retention ponds on site which are used to hold captured rainwater, as discussed in section 4.2.3. Another had investigated the possibility of constructing one on their property, but abandoned the idea after it proved too costly. The remaining four respondents were unfamiliar with retention and detention ponds and required that a definition be read to them before responding to the question regarding appropriateness of use in resort hotel properties. Upon hearing the term defined, one respondent stated that his property had a retention pond on site, though it is actually a detention pond.

Five respondents felt that retention and detention ponds were appropriate for use in resort hotel properties. The two who thought these practices were not appropriate were responding from the standpoint of their own properties. Both of these properties are located near the Plaza, the center of downtown Santa Fe, with little or no space available for retention and detention ponds.

The two properties that did have retention or detention ponds, Property One and Property Six, represent the two largest properties in the sample, with 250 and fifty-seven acres respectively.

4.2.5.1 Perceptions of Relative Advantage Regarding Retention and Detention Ponds

Respondent Two perceived an aesthetic advantage to be gained by the use of retention ponds, "I suppose those types of ponds could house fish and whatnot...it could theoretically be...an attractive water feature, which would be a perfect situation for a resort."

4.2.5.2 Perceptions of Compatibility Regarding Retention and Detention Ponds

Two respondents had concerns about the compatibility of retention and detention ponds with the lack of space to implement them at their properties. Respondent Four said, "Truth be told, every bit of square footage I have is taken up by parking places and building

structures. So I have no space to put such a pond.” And Respondent Five said, “I’m not sure how it would fit in.”

4.2.5.3 Perceptions of Complexity Regarding Retention and Detention Ponds

Respondent Five’s perceptions of retention and detention ponds indicated that with his present understanding he was not likely to pursue adoption of the practice, saying, “Maybe I don’t understand them well enough, but I don’t know [that they would be compatible with this property.] On a resort environment when you’re talking a lot of acres, certainly, yeah, but not necessarily here.”



Figure 4.3 Detention pond at Property Six.

4.2.5.4 Perceptions of Trialability Regarding Retention and Detention Ponds

No perceptions pertaining to trialability associated with retention and detention ponds were found in the interview transcripts.

4.2.5.5 Perceptions of Observability Regarding Retention and Detention Ponds

Respondent Three had observed retention or detention ponds at other resort hotels in the Santa Fe area. She said, "...larger properties like Bishop's Lodge has one...I think Encantado has added one. I have not seen anything in the downtown area for a retention pond." Respondent Four had also seen retention or detention ponds in other local resort hotels, saying, "I believe Bishop's Lodge has such a thing. I don't know if that's what it was designed for, but I know they have these bodies of water throughout the property and it's a resort hotel, of course...I think it probably helps them water their acreage, [and] creates a very wonderful feel..."

Respondent Three also talked about the positive aspects of having an observable retention or detention pond, saying "I think that's a good use and I think it's good for the guests to see that you're...creating that and using effluent water for your watering versus potable." But she had concerns about whether guests would understand what they were seeing without interpretive signage. "You know, and they see it, it's like, oh, there's a pond. Do they really understand the process of it? I mean you could put some small information near it that could be on a metal...tag that would say this is a retention pond, it is used for such and such, which could then be more of an education. Which I think would be a good thing, but I don't necessarily think that the regular guest is aware of what the use is for and the need for it."

4.2.6 Graywater Recycling

Six of the seven respondents were immediately familiar with graywater recycling. Upon hearing the definition, the remaining one respondent indicated he was somewhat familiar with the practice. Like rainwater harvesting, graywater recycling is encouraged by Santa Fe city code, so the high level of familiarity among respondents was expected. All seven respondents thought that graywater recycling was appropriate for use in resort hotels properties, though concerns were expressed about possible mixing of graywater into potable resources, as well as "odor" and "safety."

Two of the seven respondents currently recycle some portion of graywater created by their properties. One of these, Property Three, does so in an informal way, manually pouring melted ice from food and bar uses onto landscape areas of their property. The other, Property One, has its own water treatment plant on site, which treats water used in the laundry, guest rooms, and kitchen.

4.2.6.1 Perceptions of Relative Advantage Regarding Graywater Recycling

Only one respondent, Respondent Six, voiced a perception related to the relative advantage associated with graywater recycling. He was using graywater to water an area that would enhance the aesthetics of his property and "...creat[e] a greenbelt that will be designed to kind of create this nice scenic area."

4.2.6.2 Perceptions of Compatibility Regarding Graywater Recycling

Respondent Four perceived graywater recycling as incompatible with the amount of space he had available at his property, saying, "If someone could find a way to fit [graywater recycling] within our limited structural space, we would like to."

Though he was recycling graywater at his property, Respondent Six had concerns about compatibility related to aesthetics and guest safety, saying, "Obviously there [are] a couple issues such as odor and safety that have to be worked out."

4.2.6.3 Perceptions of Complexity Regarding Graywater Recycling

One respondent was researching methods of graywater recycling at the time of the interview. Respondent Five said, "We're actually looking into doing laundry water recycling. So probably in the next six months we'll put that system in."

Respondent Seven had researched graywater recycling in the past and had decided not to implement it. She said, "We looked into it, but couldn't find a viable way to catch it. So we studied it and abandoned it." However, she did discuss a time when conditions demanded an ad hoc solution. "We did use it during a drought a few years ago. Watering was restricted to

once a week, and with all the plants here...so we relied on our barrels and backwash from the swimming pool. We had to put in additives and let it sit because of all the chemicals in it.”

4.2.6.4 Perceptions of Trialability Regarding Graywater Recycling

No perceptions pertaining to trialability associated with graywater recycling were found in the interview transcripts.

4.2.6.5 Perceptions of Observability Regarding Graywater Recycling

No perceptions pertaining to observability associated with graywater recycling were found in the interview transcripts.

4.3 Summary of Findings

Four of the five practices, rainwater harvesting, green roofs, retention and detention ponds, and graywater recycling had one positive perception related to relative advantage and no negative perceptions. Permeable paving had one negative perception and no positive perceptions related to relative advantage associated with it.

With fifteen occurrences, perceptions related to compatibility outnumbered the other four attributes. The perceptions tended toward the negative, with more negative than positive perceptions for the compatibility of rainwater harvesting, retention and detention ponds, and graywater recycling. Positive perceptions outweighed negative ones for the compatibility of both permeable paving and green roofs.

Three of the four practices elicited only negative perceptions relating to complexity: permeable paving; green roofs; and retention and detention ponds. Graywater recycling elicited one positive and one negative perception, and rainwater harvesting elicited no perceptions, positive or negative.

No perceptions were found that were tied to the trialability of any of the practices studied. The only time a comment related to trialability was made was regarding Property Three, where they are experimenting with perennial plant selections in planters where they have traditionally used annuals, and their efforts to keep the plants alive over the winter months.

Two practices had more positive perceptions related to observability than negative ones. These were green roofs and retention and detention ponds. Rainwater harvesting had three negative and one positive perception related to observability, and permeable paving elicited no perceptions of either kind.

Table 4.4 Summary of Positive and Negative Perceptions per Practice

	Permeable Paving		Rainwater Harvesting		Green Roofs		Retention and Detention Ponds		Graywater Recycling		Total
	Positive	Negative	Positive	Negative	Positive	Negative	Positive	Negative	Positive	Negative	
Relative Advantage	0	1	1	0	1	0	1	0	1	0	5
Compatibility	3	2	1	2	2	1	0	2	0	2	15
Complexity	0	1	0	0	0	2	0	1	1	1	6
Triability	0	0	0	0	0	0	0	0	0	0	0
Observability	0	0	1	3	2	0	2	1	0	0	9
Total	3	4	3	5	5	3	3	4	2	3	35

CHAPTER 5
CONCLUSIONS
5.1 Conclusions

According to Rogers (2003), an increased rate of adoption of an innovation should be predicted by a prevalence of positive perceptions held by potential adopters relating to the five attributes of innovations, relative advantage, compatibility, complexity, trialability, and observability. According to this theory, a higher rate of adoption should be seen for green roofs compared to the other four practices included in this study. Green roofs elicited a total of eight associated perceptions, five positive and three negative. The findings suggest that an improvement in the understanding of green roof technology among general managers of resort hotel properties would further increase its rate of adoption.

Permeable paving and retention and detention ponds each elicited three positive and four negative perceptions. The three positive perceptions for permeable paving were all gained in the area of compatibility. Of the negative perceptions, one was related to relative advantage, two to compatibility, and one to complexity.

The three positive perceptions regarding retention and detention ponds were made up of one for the relative advantage of the practice and two in observability. The four negative perceptions were in compatibility, complexity, and observability. The prevalence of negative perceptions of both permeable paving and retention and detention ponds indicated a lower rate of adoption than for green roofs.

Graywater recycling had three negative perceptions associated with it relating to compatibility and complexity. Complexity also elicited one positive perception, in effect negating the negative one. It also had a positive perception related to relative advantage. The findings

suggest that improvements in the perceived aesthetic compatibility of graywater recycling with resort hotel properties would increase its rate of adoption.

The findings regarding rainwater harvesting are puzzling. This practice gathered the highest number of negative perceptions, with two regarding compatibility and three regarding observability, for a total of five. This would indicate a lower rate of adoption among potential adopters. However, this is also the practice that had been implemented most prior to the interviews among the sample properties. Positive perceptions were observed regarding the relative advantage, compatibility, and observability of the practice. More research is needed in order to determine why perceptions tend towards the negative despite the fact that the practice is the most commonly used of the five practices studied.

Beyond an analysis corresponding to Rogers' Attributes of Innovations, some overall themes were observed. First, while one respondent cited a desire to implement environmentally healthy practices based on her personal beliefs, the other respondents showed an overriding concern with hotel profitability and return on investment. This concern was seen to guide the majority of decisions regarding the landscape practices employed at the sample properties. Respondent Three discussed the prioritization of hotel needs and budget allocations, and how improvements to rooms took precedence over changes that would not be visible to guests. And upon learning about green roofs, Respondent Four immediately saw the possibility of using that practice to improve the salability and rate of a set of rooms that currently looks over a bare rooftop.

Second, education and exposure to these practices are important factors in familiarizing these clients with ecologically performative landscape practices. While the majority of the respondents were familiar with rainwater harvesting, retention and detention ponds, and graywater recycling, fewer had an understanding of permeable paving and green roofs. Furthermore, incorrect assumptions were made about permeable paving and green roofs, possibly leading to resistance to the implementation of these practices. Respondent One

considered himself to be familiar with permeable paving. But his experience was limited to grass pavers so he was unaware of asphalt and concrete which allow permeability while appearing very similar to traditional materials. With this information, the respondent might consider permeable asphalt and concrete as a viable option in the future. As part of this effort to familiarize clients with these practices, landscape architects should demonstrate that these practices need not conflict with the aesthetic appeal of the property. This could be accomplished through the sharing of photos of well tended examples of the practices, site visits to places these practices have been successfully implemented, and the inclusion of articles in hotel industry publications in which landscape architects explain these practices and discuss their aesthetics.

Finally, an effort should be made to encourage the incorporation of ecologically performative landscape practices in the criteria for hotel industry awards and other forms of status recognition. For example, Respondent One discussed his efforts to retain his hotel's ranking as a four diamond Triple A property. If the criteria for earning this distinction included some of these practices, hotel management would have an additional incentive to implement them.

5.2 Relevance to the Profession of Landscape Architecture

A central responsibility of the profession of landscape architecture is to “manage and minimize environmental risks to the public's health, safety, and welfare through quality design and planning” (American Society of Landscape Architects 2008a). With this mission, the implementation of ecologically performative landscape practices should be prevalent among landscape architects. But studies show that while there is much discussion of these practices and their value, “implementation...lags substantially behind discourse” (Calkins 2005). The reasons for this discrepancy stem, in part, from a resistance to these practices from clients. In order to respond to this resistance, landscape architects must have a clear understanding of

why resistance exists and the factors contributing to it. Only when this resistance is clearly understood can landscape architects begin to address the reasons for it.

By gathering perceptions through one-on-one interviews, this research sheds light on how one type of client, the hotel decision-maker, perceives ecologically performative landscape practices. It suggests that by taking a proactive stance in demonstrating a return on investment for these practices, landscape architects could address one aspect of client resistance. One way to do this is to focus on the demographic targeted by the hotel. Prevailing attitudes towards environmentally healthy practices are changing as buying power shifts to younger generations. If the hotel decision-maker understands that these practices are valued, or even demanded, by potential guests, an argument is made that the practices will contribute to an increase in competitiveness in the market.

This research also suggests that educating clients about the value, aesthetics, and mechanics of these practices is an important step toward counteracting incorrect assumptions where information is incomplete.

5.3 Suggestions for Further Research

Based on the findings of this study, it is suggested that further studies be done in which:

- resort hotel managers from a wide spectrum of locations are included in the sample to yield a broader view of how the ecologically performative landscape practices are perceived in climates with various environmental issues;
- analysis is performed on the perceptions of these practices held by other stakeholders in resort hotel properties, such as owners, management companies, guests, on-site landscape personnel, and landscape architects who design for these properties; perceptions of each group of stakeholders could be compared with the perceptions of the others for information on possible assumptions which influence the rate of adoption;
- data is gathered specifically about the trialability of these practices;

- more information is collected about the respondent to gauge the influence that the person's background has on the way they perceive these practices;
- the qualities of an innovation are analyzed for how they affect its adoption in a field that has a strong aesthetic component such as landscape architecture, versus those fields in which the aesthetic considerations of an innovation are not a factor (such as agriculture);
- photo elicitation is used to gather perceptions about the aesthetics and appropriateness of use of the selected practices within resort hotels and other unique contexts;
- the financial impact of the selected practices within the resort hotel market are compared to their impact on other types of hotels; and
- other research methods are used to study the same questions posed in this paper, including quantitative methods such as structured interviews or internet based surveys.

APPENDIX A

INTERVIEW QUESTIONS

INTERVIEW QUESTIONS

- What type of experience do you try to provide for your guests?
- How does the exterior setting of your property contribute to this experience?

I have identified some ecological landscape design practices that could be used on a hotel site. I'd like to ask you about your knowledge and perceptions of them. The first questions deal with permeable paving.

- Are you familiar with permeable paving?
- Please describe permeable paving as you understand it.
- Have you used permeable paving at your property?
- Is permeable paving appropriate for use in a resort hotel property? Please explain why or why not.

Now I would like to ask you about rainwater harvesting.

- Are you familiar with rainwater harvesting?
- Please describe rainwater harvesting as you understand it.
- Have you used rainwater harvesting at your property?
- Is rainwater harvesting appropriate for use in a luxury resort hotel property? Please explain why or why not.

The next questions are regarding green roofs.

- Are you familiar with green roofs?
- Please describe green roofs as you understand them.
- Have you used green roof technology at your property?
- Are green roofs appropriate for use in a resort hotel property? Please explain why or why not.

Now I would like to ask you about retention and detention ponds.

- Are you familiar with retention/detention ponds?
- Please describe retention/detention ponds as you understand them.
- Have you used retention/detention ponds at your property?
- Are retention/detention ponds appropriate for use in a resort hotel property? Please explain why or why not.

Finally I have some questions regarding graywater recycling.

- Are you familiar with graywater recycling?
- Please describe graywater recycling as you understand it.
- Have you used graywater recycling at your property?
- Is graywater recycling appropriate for use in a resort hotel property? Please explain why or why not.

APPENDIX B

INTERVIEW TRANSCRIPTS

RESPONDENT #1: INTERVIEW TRANSCRIPT

KM: To begin I would like to ask some questions that will help me better understand how you present your property. What type of experience do you try to provide for your guests?

R1: Overall, [this property] is a full resort, so therefore we try to present a complete resort experience for our guests. That means that they're attracted to the resort because of a variety of reasons. It could be because they are coming here for a leisure experience and they've chosen to come to New Mexico as opposed to Colorado or maybe Arizona, or they're coming here because they've been directed by their company to come for a conference. Or they could be coming here for a wedding so in looking at all those guests what we try to do is provide experience that is complete and well rounded. In other words, the worst guest for us to have here is the guest who checks in at seven p.m., they grab a hamburger through room service, they turn on the t.v., they fall asleep and snore. They wake up at six a.m. and they bolt out the front door. That's not a good guest for [this property.] The better guest is the guest who comes in, who checks in leisurely, who talks to the front desk and finds out about our spa, consults the concierge to plan their events here. Because we have horseback riding, we have the spa experience, we have skeet shooting, we have a tennis club, we have all these activities. We have a restaurant, we have room service, and we have a poolside restaurant as well. So our goal is to try to have a guest come and stay long enough to experience as many of those amenities as they can. That's really what we're trying to accomplish. The more of those individual experiences that they have create a memory for them to take away and that's what we try to do. Now, having said that, it goes without saying that in trying to operate a four diamond resort, my job as the managing director is to make sure that all of our associates and employees have a vision of what we're trying to create: that experience that I just described. And secondly, that they're trained to four diamond standards, and that thirdly they have the tools to do their job. If they share the vision, if they're trained, if they have the tools to do the job, the next logical thing that happens with an associate is they have real confidence. And when they have real confidence they build a relationship with the guest. That's my ultimate goal. That supports everything that I've said the last several minutes. In other words, and in the end, there are two ways a person experiences something. One is physical and the other is emotional, right? So in providing them with all the physical [amenities], I'm trying to encourage them to use everything by getting them to know our concierge

and getting to know everyone. And training our employees to stand with confidence, then they build a relationship then there's a good interaction. The guests walked away with a memorable experience. But its not just physical. It is also the emotional attachment. So that's our goal, very simply.

KM: You mentioned the four diamond grading. What exactly is that?

R1: Well, there is an organization in the United States call the American Automobile Association. Triple A they call it. And that organization establishes a criteria whereby hotels are evaluated and judged on a very specific set of criteria that relates to a one diamond hotel, a two diamond hotel, a three diamond hotel, a four diamond hotel, five diamond being the highest. There's actually a book that states specifically what type of wall covering, the quality of the wall covering on a guest room would be required to be considered a four diamond hotel. Beyond just the wall covering, it has to do with landscape, it has to do with level of service. And the hotels that are attempting to be three-, four-, five- diamond hotel are inspected, secretly inspected, every year by secret inspectors who come in and use a two hundred point system to evaluate every part of the resort. Physical and service levels.

KM: OK, going back to the type of experience you try to provide, how does the exterior setting of your property contribute to this experience?

R1: Well, I think in the case of [this property] its huge, and the reason why is because New Mexico in general has a variety of different topographies. If you go up closer to the Colorado border you would find its a lot richer. But here, I live up over the hill, everything is dirt. Except for this little, tiny valley that we're in here called Tesuque. And this little pocket, this beautiful piece of ground, its extremely lush because of all the beautiful trees that create meadows which are very unusual here in New Mexico. And large lawns with beautiful grass, surrounded by these gorgeous trees and these beautiful adobe style buildings. So that whole atmosphere makes people feel that they're in a true, rounded, lush resort in New Mexico. So I think [this property] in particular, that this whole setting on the core of ten acres, 250 acres, 700 acres, is very, very important to the overall experience. The reason why is because they come out, they see the monument sign, they drive up the beautiful drive with all the waterfalls, they see the old style coyote fencing. And then they drive into this beautiful setting

which is really multi-tiered, so it's the first thing they see. They see the pool on the left, they see the conference center sitting out, they see the main lodge sitting higher. And they see the chamisa on the ridge and all the rest. Its kind of multi-tiered, almost like a wedding cake. So I think in this case, in this resort, unlike some other urban hotels, that you'll see why you're here. The landscape here really enhances the overall guest experience.

KM: All right. I've identified some landscape design practices that could be used on a hotel site. And I'd like to ask you about your knowledge and perceptions of them. And the first questions deal with permeable paving. Are you familiar with permeable paving?

R1: Yes.

KM: Can you describe permeable paving as you understand it?

R1: Well, my only experience with permeable paving has been two [times.] One is in fire lanes. Where that type of plastic has been used as a base or foundation over the top of some type of foundation, corrugated or whatever. And then grass is planted in and around it where the grass has come through and then cut down so you don't see the actual support, you only see the grass.

KM: OK, so that's a plastic grid?

R1: It is, yes. The second that I'm aware of, that I've used many times, is for trails, using some type of mulch on top of some type of base to create a walking path, jogging path, or something in that area. [These are] the only permeable pavements that I'm aware of, that I've worked with myself.

KM: OK. At this property, do you use any permeable paving?

R1: No. Not at the moment.

KM: OK. And do you feel permeable paving is appropriate for use in a resort hotel property?

R1: Well, while my knowledge of it is limited, if I knew a little more about the extent of its use, I would probably say yes, but I don't know. In the cases where I've described it I think its very useful.

KM: Now I'd like to ask you about rainwater harvesting, something I know you guys do out here.

R1: Yes.

KM: Are you familiar with rainwater harvesting?

R1: Yes. Yes, we are.

KM: And I'm asking the same four questions about all of [the practices] so it may sound a little awkward, but please describe rainwater harvesting as you understand it.

R1: OK. The concept is moisture comes out of the sky, it's collected for reuse. We do that here in several places. We have the two ponds that you saw on the way in, harvesting water, which is then percolated over through the cement, and is put into ponds where it goes and is used. Also in and around the resort in several areas we have collection areas where we do collect water.

KM: When you say "percolated through the cement," can you elaborate on that?

R1: Well I would say that it is a process whereby the water is coming through a natural setting and any sediment that is in the water is filtered off through a natural process of going through the rock area that we have.

KM: And earlier you mentioned the waterfalls near the entrance. Are those associated with the rainwater collection?

R1: Yes, they are.

KM: All right. How do you feel about the level of appropriateness for use in a luxury resort property?

R1: Well I would say that my motivation would be in two areas. One is to be attuned to how the guest perceives it, and more and more there I find that not necessarily the baby boomer generation, because it doesn't seem that they're very interested, but I see the younger generation – the y's and the x's – who are now approaching getting married do look at resorts and look at their focus or interest in green facilitation or management, so that make me more interested. Secondly, I think in an area where like NM where the rainfall is minimal, any type of initiative to collect moisture is very advantageous for us.

KM: And you were taking about guests' perceptions. Are guests aware that you collect rainwater?

R1: We do not have, presently, an internal information brochure on this system. But we are working on it. Because what I'm seeing, again, more and more, I think the X and Y generation[s], the ones I try to focus on...instead of trying to be green everywhere, which in a resort that's ninety years old can't be. The reality is I try to focus on who those consumers are who are most interested and could be who would be most open to see our support of these initiatives. And those are the people that I described.

KM: And how are you aware of these guests' interest in this type of practice?

R1: I would say its general knowledge. I read a lot of magazines. I read the New York Times. And I get a lot of hotel magazines, as well as we get a lot of consumer magazines to keep attuned to what the consumers are looking for. For example, Real Simple is the magazine that I think is really targeted towards those people. And so I'll go through and I'll look at some of the brands they're advertising in there and I'll just scan some of the articles. Travel and Leisure sometimes focuses on green resorts. I also [belong to] an organization called Green Lodging Association that I get a monthly newsletter from so I can keep abreast of what are the issues, what are the notions, that are being talked about that support that issue?

KM: The next questions are regarding green roofs. Are you familiar with green roofs?

R1: No.

KM: You don't have any idea what they are?

R1: I don't. Never heard of them. I'd like to.

KM: OK, retention and detention ponds. I think we touched on this earlier.

R1: Yes.

KM: Are you familiar with retention and detention ponds?

R1: Yes.

KM: Please describe them as you understand them.

R1: Well this is my second experience with a retention pond. The first experience I had was with a resort that I opened in Anguilla, a Caribbean island, where we had a retention pond for that was [for] graywater. And we decided to how to use, how to manage that pond or cistern, is what it really was, to understand the process of the settling, and then understand the sequential process of settling and when we could start and use the water. And where were the applications where we could use it. So that was my first experience. The second experience is here. We have a retention pond here, we have two of them. And we actually have a water treatment plant here as well, onsite, which is very unusual.

KM: Are retention and detention ponds appropriate for use in a resort hotel property?

R1: Yes they are.

KM: And you've not experienced any conflicts with guest expectations?

R1: Not at all.

KM: Can you tell me a little bit more about the water treatment plant?

R1: Yes. It's old and it needs about forty hours worth of onsite supervision by a certified technician who is one of our partners in attempting to make sure that the treatment plant is meeting code that's required by the county. That it's in good working order,

meaning that all of the pumps in the facility receives an appropriate [maintenance] program and that the output is functioning appropriate to what our goals are.

KM: And this may tie into what I'm going to ask you about next which is graywater recycling. Is that what that water treatment plant is doing?

R1: Yes, it is.

KM: Can you describe graywater recycling as you understand it?

R1: Yes, not dissimilar to what I experienced in the Anguilla experience. The water is collected, it is tested, and then there's a managed plant or place to understand where appropriately the graywater can be used.

KM: Going back to the green roofs, maybe I can tell you how I understand them and then we can talk about these other issues.

R1: OK.

KM: A green roof is like a roof garden, but it tends to be not really a space for humans, whereas a roof garden is really for people to come out on their balcony and enjoy the plants. A green roof is really planted for the collection of runoff, and it can help insulate the building, it can help keep it warmer or cooler inside, [and] it contributes to carbon sequestration. So its got a bunch of environmental benefits. With that explanation, would you think that would be appropriate for use in a resort hotel property?

R1: Yes, I think it would be. I think that in an urban setting, certainly, that it would be more beneficial, but I think that any type of hotel, resort, or even buildings could benefit from that.

(Closing)

RESPONDENT #2: INTERVIEW TRANSCRIPT

KM: All To begin, I'd like to ask some questions that will help me better understand how you present your property. What type of experience do you try to provide for your guests?

R2: Well, the most important thing to me is to make memories. Memories in the sense that that are tied to your senses, you know, smell, sight, sound. We want to provide memories so that guests remember their experiences, so that not only come back to visit us but also tell others about how great their experience was so that they come and visit us as well.

KM: Okay. How does the exterior setting of your property contribute to this experience?

R2: Well, making memories, one of the senses is sight. It's not the most powerful sense. Taste is most powerful because if you ask somebody what their earliest memories are, it is usually eighty percent related to taste. But sight is not very – you know, not a very powerful sense, even though it can be quite, you know, amazing when you actually see something.

And what we want to do here is provide for a very authentic look, so that guests can actually associate Santa Fe and its heritage with our hotel. So it plays a vital role.

KM: Okay. How does the exterior of the property support that feel of authenticity?

R2: Our hotel is mirrored after a 1,200-year-old authentic, Native American Taos pueblo. And if you actually go an hour north of here you'll come to the town of Taos, and they have an original 1,200-year-old pueblo still in existence and it looks remarkably close. Of course, ours is much better maintained because it's a hotel we've worked on. But the pueblo in Taos still exists and people still live there. And it has the five levels and different things, so it's quite interesting.

KM: How old is this property?

R2: This hotel is almost – it's going to be forty years old shortly.

KM: And how long have you been with the property?

R2: Seven months only. [Previously] I was with Fairmont. I was the hotel manager at the Fairmont in Dallas.

KM: Yes?

R2: For ten years and before that I worked for Hyatt for nine years. So I'm new to [this company].

KM: And isn't Fairmont at the forefront of the green movement?

R2: Yes, indeed it is, certifiably so. The greenest hotel company on the planet.

KM: Yes. Have you brought any of your ideas from Fairmont?

R2: Well, [this company] has its own green initiative, and we are now at the ending of – at the conclusion of our third stage with progressing levels of difficulty to attain. And we are going to make a public announcement that all thirty-four are – I think maybe it's thirty-four, certified hotels [within this program].

So we're about ninety-five percent complete. We're still missing all of our back of house, you know, light – say – energy saving lights. We needed to change the fixtures, the ballasts, the bulbs themselves, etc., etc. So but yeah, we're almost there. We haven't quite found an eco-friendly drain cleaner and stuff like that but we're well on our way.

KM: So you're at the end of your third stage, how many stages are there?

R2: There are three.

KM: There are, okay, so you're almost completely finished.

R2: At this time and of course, going forward there's going to be more, but for the time being, for the public announcement we needed to just get on board with, you know, some basic things.

KM: Mm hmm. Are any of those initiatives landscape-based?

R2: Well, not yet. I envision, from Fairmont, you know, we have composting in – well, now that I say that, we actually have about eighty percent of the herbs that we use in the kitchen grow on our patio. So yeah, it doesn't get any closer than that. It reduces your footprint on the environment. We try to use, you know, locally driven and regionally driven, you know, food sources. You know, some organic, you know, some natural. But as much as we can get. But that has nothing to do with landscaping, but the herbs are actually scattered throughout the patio and the restaurant, and it could be considered, you know, [a company] initiative even though it's not one of the criteria.

KM: Okay. I've identified some landscape design practices that could be used on a hotel site. I'd like to ask you about your knowledge and perception of them. The first questions deal with permeable paving, excuse me, permeable paving. Are you familiar with permeable paving?

R2: No, no, not that I am.

KM: Okay. Could I read you a definition and then ask you a couple more questions?

R2: Sure.

KM: Permeable paving is also called porous pavement. It's a pervious surface with an underlying stone reservoir to temporarily store surface runoff before it infiltrates into the subsoil. And it's used for things like – it can be used for parking lots or anywhere you use traditional paving.

R2: Mm hmm.

KM: So with that in mind, do you feel that that would be appropriate for use in resort hotel properties?

R2: Well, any item that is environmentally friendly is appropriate for any use. Now, I don't understand how the retention of water in the reservoir will assist, you know, the environment, because ultimately it will have to go to the reservoir anyway.

KM: Mm hmm.

R2: So I'm not quite sure how that will help, but if it does and if it is cost effective, then sure I would be – I think that it would be usable at the resort, I wouldn't see why not.

KM: All right. Thank you. Now I'd like to ask you about rainwater harvesting. Are you familiar with rainwater harvesting?

R2: Yes.

KM: Please describe rainwater harvesting as you understand it.

R2: Well, I grew up – well, I'm a German citizen. In Germany, everybody has cisterns and things of that nature. So when rainwater falls onto any surface, it collects and it's temporarily stored in the cistern and can have many uses. It can be used for irrigation, it can be used for nonpotable water use, like flushing toilets and if you run it through the appropriate amount of filters, you can use it for washing clothes and different things. So that sums it up.

KM: Okay. Do you harvest rainwater here at this property?

R2: No, we do not.

KM: Do you feel that rainwater harvesting is appropriate for use in a luxury resort hotel property?

R2: Oh yes, absolutely. I've worked at resorts that harvest rainwater.

KM: In the resorts that you worked at that harvested rainwater, were the guests aware that that was being done?

R2: Well, due to the fact that it was not affecting the guests, we would not share this information. It wouldn't matter whether or not, you know, we irrigate our plants with rainwater, as long as the guests understand that they're not showering with it. Had it had an impact on guests we would've surely shared the information.

KM: Okay, thank you. The next questions are regarding green roofs. Are you familiar with green roofs?

R2: Yes, I'm – well, I know about them but I don't know any detailed information.

KM: Okay. As you understand them, can you describe a green roof?

R2: Well, a green roof is on the surface of the roof you will create like a mossy texture and earth in order to provide for, you know, I don't know, probably allows for water to be absorbed in, you know, in the green roof. It also probably is another source of – you know, it probably creates oxygen because of, you know, the photosynthesis going on. Other than that I don't know anything. I'm not sure if I'm too helpful here.

KM: Have you used green roof technology at this property?

R2: No.

KM: And do you feel that green roofs are appropriate for use at a resort hotel property?

R2: Yeah, I don't see why not. Anything that is environmentally friendly, in any application, should be a worthy thing to pursue. You know, there's nothing – just because it a resort luxury environment, you know. If the luxury environment can be eco-friendly, because most people who stay at luxury resorts have some degree of understanding that, you know, what it is we do today affects future generations and we need to be good custodians of our environment, you know, regardless of whether it costs a lot to stay at the resort or not, you know.

KM: Now I would like to ask you about retention and detention ponds. Are you familiar with retention and/or detention ponds?

R2: No, I'm not. Could you read a definition?

KM: Sure. A detention pond is a land depression constructed for the purpose of temporary storage of storm water runoff and the gradual release of stored water at controlled rates into the groundwater.

R2: Mm hmm.

KM: And a retention pond is really the same thing but it's more of a permanent pool.

R2: A pool, like a swimming pool or a pool just of water collection – to collect water?

KM: Yes, yes, like a pond to collect water. But a detention pond may be just wet for a few days after a rain event.

R2: Okay.

KM: Whereas a retention pond would probably stay full most of the time. With that in mind, do – and I'm – I ask the same questions about all these. So do you feel that that would be appropriate for use in a luxury hotel property?

R2: Sure. You can – I suppose those types of ponds could house fish and whatnot. It can actually be – it could theoretically be, you know, an attractive water feature, which would be a perfect situation for a resort.

KM: All right. And finally I have some questions regarding gray water recycling.

R2: Gray water?

KM: Mm hmm. Are you familiar with gray water recycling?

R2: Well, give me the definition and I'll -.

KM: Okay. It's the recovery and reuse of wastewater from building uses such as lavatories, showers, washing machines and other facilities that do not involve human or food waste.

R2: Yes, that's what I thought, you know, like from the laundry.

KM: Yes. Do you recycle gray water at this property?

R2: We do not. I know facilities that do. It has great applications for resorts, laundry is one of them, toilet flushing. If properly conditioned, it can work in the closed-loop HVAC system, as long as it does not have – it never makes it into the sinks and/or the faucets that we use in the kitchen, and/or, you know, any of the sinks where people could theoretically drink from.

KM: Yes.

R2: That's where I don't think it has an application in resorts.

KM: Okay. And that answers my last question, so that concludes my questions for you. Do you have anything you would like to add regarding the topics we've discussed?

R2: No, I think you're addressing some really important issues. You know, being – my heritage, being European, Europeans have been recycling and, you know, green roofs. I have a friend who is an engineer for that specifically. And I say, "Green roofs, what are you talking about?" And so, you know, while we're walking, you know, he tries to explain it to me, and that conversation took place, I don't know, fifteen years ago. So the United States of America has to learn how to use its resources better and to reuse the resources that it has already used in order to gain more use out of them.

KM: Yes.

R2: And it's a really important initiative. That's why I enjoyed working for Fairmont and [we're] is on the right path, despite the fact that they haven't graduated to that level yet.

(Closing)

RESPONDENT #3: INTERVIEW TRANSCRIPT

KM: To begin, I'd like to ask some questions that will help me better understand how you present your property. What type of experience do you try to provide for your guests?

R3: Well, guest service is our number one priority because we feel that this is our home, so we're bringing someone into our home and how we treat them is for them to feel that they are welcomed but that we're not too familiar. But yet, they feel that we're here available to them for any questions that they may have. So it is – most of our guests' response is that they felt like they were coming home, but yet nobody was too invasive of their time. We were available if we needed to be. We were appreciative of them being here, but we left them to their own if they wanted to. So guest service is number one.

KM: How does the exterior setting of your property contribute to this experience?

R3: Because we have ten different buildings, people feel that they're moving from one building to another through courtyards and intimate spaces, which kind of helps to make that feel that since we're referenced as an Inn, but we supply breakfast. So sometimes people feel that we're a B&B. But the point of a B&B is that the owner's there and you have this very familiar type of, you know, conversation. And we almost have that same feeling, but yet the owner is not going to sit down to breakfast with you and share their experiences. So having those pathways leading to their room kind of makes them feel like they're in a smaller property, you know, not a large commercial feel, which is very important to our guests and how we market the property.

KM: In what ways do you market the property?

R3: Through photographs. We've just been in the process of taking new photographs and it's been very important for us to kind of give that feeling of a warm, intimate space. So you know, making sure that the lighting is just right, making sure that we're showing the different seasons. In spring there's a lot of color, in the fall there is this, you know, you feel that it's almost kind of cold because you see the trees turning. To kind of display that through that process.

KM: Okay. I've identified some landscape design practices that could be used on the hotel site, and I'd like to ask about your knowledge and perceptions of them. The first questions deal with permeable paving. Are you familiar with permeable paving?

R3: Describe what you mean by it.

KM: Okay, I'll read you a definition. Permeable paving is also called porous pavement. And it's a pervious surface with an underlying stone reservoir to temporarily store water runoff before it infiltrates into the subsoil that can be used just about anywhere that asphalt or concrete is used.

R3: Okay. That sounds that if you were starting with an install would be a less expensive way to – not – to start that way, but since we already – we're 23 years old to -. When you have a property that's 23 years old, you of course, when you're landscaping, look at all the ways to conserve water and not just for the pricing but also for what our beliefs are here. But to pull of the existing concrete and the things that were done 23 years ago or 13 years ago with some of the newer, is a little bit – it's not the best use of our money at this point, because we have other infrastructure issues that are going on. You know, things like that, aesthetics in the room, you know, sofas, new TVs because of the analog going to digital, those types of things.

KM: Yes.

R3: So it wouldn't be a priority. It's always good to have that information, because then when we get through this type of capital improvement that would be something that we would definitely look at.

KM: Mm hmm, okay. Do you think that this would be appropriate for use in a resort hotel property?

R3: Oh, definitely. I think that, you know, what first comes to mind, and this might be wrong, is you know, I'm thinking someplace where it's not – doesn't have the four seasons as specific as we do, because it's something that would be a little easier to maintain. And worried about a pathway here when you have a foot of snow that has, you know, a rock underneath and then some kind of permeable, how do you – you

know, I'm just not familiar with it. Thinking about people scraping up my entire pathway because moving the snow would be or blowing it and there goes the, you know, complete pathway. I moved to Florida for a while and I was just in Palm Desert and that seems more of an area where year-round that could be maintained that way. We've done it more with our bedding, where we have our – you know, we don't use the small rock in that. We use a shell – the pecan shells, because then it allows the moisture to be retained but it allows moisture to go through, and then it breaks down and it adds nutrients to the soil. And we've had to do that pretty much every year. The expense of having to add it because it breaks down is not a concern to us. It's more about, you know, what are we putting on here. That is going to, you know, have the effect we need, and it looks really pretty but yet it still does what we want it to.

KM: So you're using that as a mulch.

R3: Yeah, exactly. And it looks really beautiful for about nine months and then you have to replace it because it breaks down. But we've found that that works really well. We had looked at doing small rock, and we just didn't feel that it had the same benefit for the soil.

KM: Okay. And that goes back to something you said about your beliefs here, and tying into your beliefs. What are you referring to when you talk about your beliefs?

R3: This last year we had consciously tried to advise our guests more about sustainability. So we have recycling available. We're still trying to find the appropriate kind of recyclable containers to be out and to fit with our landscape where it doesn't look like some really ugly, huge thing, which is very difficult.

KM: Mm hmm.

R3: You know, you wouldn't think it would be that difficult but people do not design these things to kind of work within the exterior kind of what we have here with all the trees and the – you know, you can't put this big ugly thing out there right next to, you know, a water fountain that has natural birds coming to it. It just doesn't fit.

But we've also going to, I think, I know that we are the only B&B/Inn of some of 72 rooms or anything over 15 rooms that does organic food on their breakfast line. We have organic coffee, fair trade coffee. We're trying to educate our clients about what our concerns are. We have organic dairy products that are actually organic, not just all natural. So that maybe if they don't do it at home that they would wonder why it's so important for the Inn, so that they maybe go back and they relook at it. It doesn't really cost more for a family to have an organic or all-natural product but it's beneficial.

So – and, you know, we have the little cards that say that it's organic. But whether – we're not like in their face saying you should be doing this. It's just our belief that, you know, what you put into your body and what you help to do for sustainability in the community is important. So that's a shift. It's actually cost us quite a bit more on our breakfast line but for a family to do it and to carry that we think is a really good benefit for it so.

KM: How long have you been doing that?

R3: About nine months now. I traveled to a Hampton Inn in October of last year and my family eats only organic at home and we purchase, you know, within a small mileage, hopefully, the majority of our food. There's some things that you can't do when you – you could, I mean there are books being written about living, you know, within a – purchasing 20 miles from your home. But for us it's just a little bit more difficult. And so we went to the Hampton Inn in October and you know, we went to see the Dalai Lama speak at the University. And so we were, you know, having this whole experience, and the breakfast was so not to our belief, and I thought, gosh, you know, what am I actually serving when I'm at the hotel and I'm back. So you know, I came back and I looked at it and, you know, it wasn't – you know, it was fresh cut fruit and that type of thing coming in but it wasn't – we could take it a little bit further. I didn't feel that we were at the same level that they are because they're very conscious about their bottom line and making sure that the breakfast is – you know, it's all sugar cereals. And so I just came back with the framework of am I walking my talk or am I just doing it in my home, and how much more of an influence can I have if I'm influencing the guests to be aware of it. I'm also influencing my employees on why it's important to, you know, be aware of it. So that was kind of the genesis of it, and then we had an owner who has a similar belief system, even though he doesn't live here, he lives in Mexico most of the

time. He was amenable to me to try because he understood where we were wanting to talk about greening the hotel and being more sustainable.

It's just difficult when you are doing your scope of your job and all the things you need to do but then you're trying to, you know, research. There's so much information out there. And find how do you take a property that's twenty-three years old -. If you have a brand new property it's very easy to become LEED certified and do all this and you know, trying to change the whole cabling system and the electrical system. All of that is very time consuming. You know, if you had somebody who that was their whole scope of their job it would be implemented much faster but there's just not that financial means to do it so. It's a slow process but it's important to us.

KM: I understand. And so you had mentioned that the pecan shells. Are there any other ways that this belief extends into your landscape?

R3: This year, what we've done is we have tried to – we have planters, you know, that we bring out for the summer – spring, summer, fall and they're these little wine barrels. And sort of talking to the head engineer who is also our landscaper, who's done an incredible job, you know, maturing this property and keeping everything alive and doing a good job. We're trying to, first of all not go to annuals, but trying to go to perennials. So then trying to find a place to store the wine barrels where the perennials wouldn't freeze and die. So that's still a learning process for us, but we're trying to consciously do that. And then we've been, over the last two and a half years, starting to look at perennials that then also flower or green in different times of the season. So that there's more continuity to there being some color here and not everything kind of laying dead in November, you know.

And then also, you know, pulling some of the annuals out of some of the pots that can last. I've tried to get more of the clay pots that now you can actually keep out for the winter, and even though they freeze they'll – you know, when it's warm day you can still water and going to more grasses. So some of those grasses are, you know, more xeriscaping that will stay perennial and have something. They may not be bright green and pretty flowers, but they'll be, you know, a warm brown and they're still alive and they're presenting, you know, nicely. So we've tried to do that too. And I ongoing process for us to kind of learn what works. And we have an aging property that has a

lot of shade in it now because of our trees. And so really trying to find xeriscaping. I mean you're over at Santa Fe Greenhouses reading going okay, shade, okay, how can we make this look -. And there is not a whole lot of it unfortunately. So that's been a challenge for us too but it's something that we're actively trying to remedy.

KM: Yeah, great. And who is going over to Santa Fe Greenhouses?

R3: Our landscape guy. He's a little bit old school and isn't quite sure that we need to do that. So it's more of an initiative me dragging him over there and going through the process. He's fine, you know, it's just he's like well that cost a lot of money. Well, yes, initially it's a lot of money but the long-term effect for what we can do for the property and what we can do with our, you know, water control and you know, we get guests who come in, what is that beautiful plant over there, you know. So that's something that, you know, just kind of fits into our little package.

KM: Okay. Now I would like to ask you about rainwater harvesting. Are you familiar with rainwater harvesting?

R3: Mm hmm, yep.

KM: And can you describe it as you understand it?

R3: Well, my understanding is you would have rain barrels or access to water that is being harvested from the weather, so to speak, and then being used in your gardening.

KM: Okay.

R3: What do we also harvest water from? We still have a few ice machines that are water-cooled and not ice cooled. We've moved the majority of them but -. And this is actually our engineering's idea is we routed it to where it could be harvested and then used in the planting where it came through. So that was kind of nice. So it's being recycled, but we're moving away from that. We still have two out of the six that are in that process of being changed over.

KM: So is that different from rainwater harvesting?

R3: Yeah, that's different.

KM: Okay.

R3: But I'm just throwing that in there. For rain harvesting, we have canales which are coming into areas where there is not a barrel, but we've routed the canales to be to go towards the vegetation and not be just going onto the street type of thing.

KM: Do you feel rainwater harvesting appropriate for use in a hotel resort property?

R3: The only problem that we've got is that thing where they're not very pretty, you know, and the barrels are so huge and trying to find space that you can actually have it kind of not be so in your face.

KM: Yeah.

R3: I mean I think there is other ways that you can do it, but again, with an aging – in the newer property you can do that. You can make it look like it's a fountain coming in or something. You know, you can make it look like a really beautiful. We're just having a little bit more difficulty trying to find that, you know, process.

KM: Yeah.

R3: We don't get a lot of rain. We get rain in July and August. And it's usually monsoon torrential. Which is not really beneficial either because it's that type of rain that overflows something within a small amount of time, but it's something that we can do more research on. But I do feel that they're not – it's hard to find a way to hide it, you know, not have it be in that that's what you see.

KM: Okay. And my next questions are regarding green roofs. Are you familiar with green roofs?

R3: My thought process is, you're talking about more things like where you – some people have gardens on them, that type of thing? Or you're using some sort of a paint

repellent to keep the heat off so that you're not having as much heat be absorbed by the building. Is that what you're referring to?

KM: Well I'm trying to figure out how people perceive certain terms, so...

R3: Those are my perceptions of it.

KM: Okay.

R3: I live in a bermed house, so that's my perception of a green roof.

KM: Mm hmm.

R3: Is it has – you know, to save energy and it basically has – it's covered with dirt and with the natural fauna around the rest of the house.

KM: So would you think that that type of thing would be appropriate in a property like this?

R3: I don't think the city would allow us to do it.

KM: Really?

R3: Yeah. I think we have such an issue because we're in the historic district.

KM: Mm hmm.

R3: I haven't looked into it. That's my first thought, is that because of the historic review. It's not a traditional historic look for the small casitas that we have. If we try to change anything with the roof level or anything with that it has to go through the historic review. So my first thought is that would be something we'd have to overcome.

KM: Okay.

R3: I don't know that they would be – that they would not allow us to. I haven't even researched into it with the – you know, I've been looking at other things for sustainability that are more immediate.

KM: Okay. The next questions are regarding retention and detention ponds. Are you familiar with retention and detention ponds?

R3: Mm hmm.

KM: And could you describe them as you understand them?

R3: My understanding is that you use it to process gray water, larger properties like Bishop's Lodge has one.

KM: Mm hmm.

R3: I think Encantado has added one. I have not seen anything in the downtown area for a retention pond. I don't even know where I'd put one here. But that's my understanding of it is to process gray water and to hold it to be reused into effluent watering.

KM: Okay, and do you think that that would be appropriate at this type of property if you had the space?

R3: If I had the space, yeah.

KM: Okay.

R3: No, I think that's a good use and I think it's good for the guests to see that you're kind of creating that and using effluent water for your watering versus potable.

KM: If the guests saw that, how would they see that?

R3: It's hard to say because I'm going as a guest, if I was a guest.

KM: Yeah.

R3: And being more aware, I would appreciate that every effort was being made to conserve water. But I'm not quite sure in today's society if everybody's so aware of – that that's actually a retention pond.

KM: Yeah.

R3: You know, and they see it, it's like, oh, there's a pond. Do they really understand the process of it? I mean you could put some small information near it that could be on a metal – you know, little tag that would say this is a retention pond, it is used for such and such, which could then be more of an education. Which I think would be a good thing, but I don't necessarily think that the regular guest is aware of what the use is for and the need for it.

KM: Okay, thank you. And then finally, I've got some questions regarding gray water recycling. We've talked a little bit about that, and obviously you are familiar with it.

R3: Mm hmm.

KM: And can you describe that as you understand it.

R3: Gray water would, in my opinion, be any kind of water that has processed through your property and being used again to water plants and the landscape area.

KM: Okay. And do you use that here at your property? You did talk about the water that goes through your ice machines and you're using that.

R3: Mm hmm. Yeah, we've done that. We also, in the kitchen, any ice or any water that has been used in the breakfast area or the bar, any water that's left over or any ice that is pulled out is then put onto the landscaping that we have so it doesn't just go down the drain. We then, you know, use it to basically water or to be put on a bed and the water goes – the ice melts and the moisture goes back into it. If we have people who have left water glasses sitting around we just throw them in a plant kind of thing. So, you know, we do what we possibly can, but that's about the extent, I think, of our ability here with the property the way it is.

KM: All right, and I think that takes care of my last question, is just how you feel about gray water reuse, if it's appropriate or not for a property like this, and that concludes my questions to you. Do you have anything you'd like to add or any questions for me?

R3: I think I would expect from someone who's going into this field to be able to come and do an evaluation and then to also educate, you know, what's available. Because it's ever changing and so much is changing so quickly. And with just the demands of a general manager or an engineering position already, and a lot of times that isn't – it's like an IT specialist. Small properties don't necessarily have an IT specialist, so you know, any time that information can be, you know, garnered for them to do their job a little bit better it's really helpful.

KM: What would be the most convenient way for you to receive that information?

R3: Well, we get inundated with so many spam marketing and emails and everything else. I mean we are going to – this is the first time that we're going to the New York Hotel show because we need a source of information instead of just Googling on the Internet. Because you're never quite sure if that is for a residential or qualified for commercial. So I think those types of platforms are really helpful because you're going to it, you're getting the information, then you're discerning it and you're saying, okay, I'm going to with this person. A lot of times the GM doesn't have the time and people are just showing up and saying, oh I have this great product for you and, you know, I can save you all this money and everything. It gets put into the line of other things that can save me money and be really great. So I think it's good to, you know, maybe be part of an organization list that that then can verify your validity and your experience. Otherwise it's kind of hard to, with the myriad of other people that come in, to say oh, this person is better than this one or -.

KM: Mm hmm.

R3: But I think it's always good to send the information out, you know, print collateral is so expensive and, you know, not the best way to use our resources, but if there is an email format that, for a hotel, American Hotel Lodging Association, you know, verifies that too.

KM: Mm hmm.

R3: I mean stories being done through there. I get an email and I read the AHLA's information all the time. And a lot of times there'll be something about greening in there, that then I'll go – because I feel like, well, they've done a lot of research. They've done the initial work for me and then I can read the article and discern whether or not I think it's of importance for my property.

(Closing)

RESPONDENT #4: INTERVIEW TRANSCRIPT

KM: To begin, I would like to ask some questions that will help me better understand how you present your property. What type of experience do you try to provide for your guests?

R4: In general, our slogan is “your home in the heart of Santa Fe.” So as a result, everything we try to do is to make them comfortable as though they are guests in our own personal living room, our own personal kitchen. So the general feeling is a sense of home, and as it relates to you, of course, the landscaping is designed to give a sense of peace and tranquility and – you know, to make them feel as though they’re in a garden setting, which of course, is very homey.

KM: And how does the landscape work to create those feelings?

R4: I think the general concept is to surround people with something that they associate with being peaceful and attractive. Flowers, of course, everybody loves, and by putting them almost anywhere we can around the property. So that as they’re walking we call them touch points. They feel a sense of peace and relaxation as though they were in their own garden. And you choose colors, of course, that are, not only grow well in this climate for us, but also are pretty and evoke positive energy.

KM: Mmm. Okay. I think that takes care of my next question which was how does the exterior setting of your property contribute to this experience.

R4: Absolutely. I can be more specific. It’s a building, and we want the building to be secondary to that sense of comfort. And so the exterior design is meant to basically overshadow the architectural element and instead create a garden element.

KM: All right. I’ve identified some landscape design practices that could be used on a hotel site, and I’d like to ask you about your knowledge and perceptions of them. And the first questions deal with permeable paving. Are you familiar with permeable paving?

R4: I’m not.

KM: I've got a definition here I'd like to read you and then I just want to get your perceptions of what I read. Permeable paving, also called porous pavement, is a pervious surface with an underlying stone reservoir to temporarily store surface runoff before it infiltrates into the subsoil. And just with that definition in mind, do you think that would be something that would be applicable or appropriate for use in a luxury hotel?

R4: I want to make sure I understand what it is, but in terms of an application, the idea that my parking lot, when it receives water, would hold basically water underneath it. I would imagine that it is applicable with the proper infrastructure underneath it. For example, if you have that water there, how do you access it to turn it into water for the plants?

KM: Mm hmm.

R4: In my case, that's a big question, because very few of my plants are on ground level. They're all up on the sides of the building. So here they are, but most of the places they're on the sides. So that would be a question. If, however, I had a parking lot where I had multiple areas around it, like islands of flowers, then, of course, I could imagine it being – it would slope it, so it would be a runoff into those plants. So I think that would be extremely applicable.

KM: Okay, thank you. Now I'd like to ask you about rainwater harvesting. Are you familiar with rainwater harvesting?

R4: I am. You're speaking of the buckets that collect water and then from those you put the water into the plants, yes.

KM: Yeah. Okay. And so have you – do you use rainwater harvesting here?

R4: We don't, because we have a very regulated drip system that takes care of our plants. Also the majority of my plants are already outside. They aren't hidden, so when we get rain they get rain. because we have tried to choose plants and flowers that are – work off the rain levels that exist in New Mexico. We don't need to supplement them a great deal during the peak months. But I'm aware of it and I think it's a great idea if you were trying to keep plants alive that don't belong in your climate, which I question the use of.

KM: Okay. And then the next questions are regarding green roofs. Are you familiar with green roofs?

R4: I – maybe not under that term. Please explain it to me.

KM: Okay. Let me read the definition. These are roofs that are planted using an engineered soil, so it's light and you put it on the roof structure. And it's planted to help reduce building temperatures and filter pollution and lessen pressure on sewer systems, and just through being planted with vegetation helps reduce the heat island effect in these metropolitan areas. It's not quite the same as a rooftop garden, which is more designed for people to move about it. So with that in mind would you – were you familiar with that?

R4: I was aware of the rooftop gardens. I know in big cities they've done those a great deal with trying to bring communities together. I was not aware that there were literally structural benefits to that concept that you just described, because – well, I think any hotelier lives in fear of the roof leaking or being unsound.

KM: Yes.

R4: And the idea of putting something up there that could require water is contradictory to what we try and prevent. However, I'm very open-minded, as long as I understood the benefits. You mentioned, the heat element is where the black roof absorbs the heat, correct, and in the movies you see actually the heat coming off.

KM: It does contribute, yes.

R4: Contributes to the heating effect. I don't think Santa Fe has [unintelligible] part of our structure, but what were some of the other benefits again?

KM: It helps to insulate the building. It captures rainwater, so instead of running off the sheet flow into the sewer system it captures it and then releases it via evapotranspiration. So with that in mind, do you think that that would be an appropriate application for a luxury resort hotel?

R4: Absolutely. I think as guests are becoming far more savvy to hotels and resorts impact on the environment, you know, right now there's an ongoing campaign to prevent water usage. And that's educating them, and I think then to see a hotel that has incorporated their roof space into a positive environment impact is a great idea. Not to mention helping with energy savings, because as we all know, electricity and gas is going through the roof.

KM: Yeah.

R4: What I would ask is, again, the hotelier who lives in fear of his roof, would – because it captures the rainwater – can it actually help with pooling on roofs and help spread the water out, so that as it pools can it be engineered to protect the roof from bodies of water that tend to cause leaks?

KM: It would be sealed very well and an engineer ensures that the weight of the soil and the vegetation isn't going to be too much for the roof. But yes, the idea is that you get the soil deep enough where you're not going to have pooling of water.

R4: Great. I assume the engineer would take into account the level of rainfall you have and elements like that and put plants on there that – and truthfully, the minute you have water hit your roof, you need to be getting it off as quickly as possible. So I would imagine that they choose plants that are thirsty.

KM: Yes.

R4: That are thirsty, they have sucked the water quickly, processed it quickly?

KM: The way I understand it is plants are chosen that are going to be okay with the amount of rainfall that the area tends to get. The ones that can take – for instance, here, they would need to be able to handle the extremes of water.

R4: And I would imagine they would address snow. All of those are just a few – those are just operational questions I would want to involve myself. But the idea sounds initially like a great idea. And I'm already thinking of somewhere in my hotel that I could have a

series of rooms where the people have to look out over the roof, and they're wonderful rooms and we keep it clean, but if I have flowers there instead, I'd be a happy man.

KM: All right. That's all the questions I had about green roofs. Now I'd like to ask you if you are familiar with retention and detention ponds.

R4: I have a vague sense of it. I associate it mainly with riparian systems for some reason, but that's about as far as it goes.

KM: Okay. A detention pond is a land depression constructed for the purpose of temporary storage of storm water runoff and gradual release of stored water at controlled rates. And then a retention pond really doesn't release the water, it tends to be more of a year round wet pond, whereas the detention pond may just be wet for a few days after a rain event.

R4: Of course, and then you tap into it to use for your own watering needs.

KM: You could do that, yes. And at the same time it's recharging the ground water.

R4: That makes sense.

KM: So with that in mind, would you think that would be appropriate for use in a luxury resort hotel?

R4: Not at my hotel, but I absolutely, in fact, I believe Bishop's Lodge has such a thing. I don't know if that's what it was designed for, but I know they have these bodies of water throughout the property and it's a resort hotel, of course. And not only does I think it probably helps them water their acreage, but it creates a very wonderful feel, so yes, its appropriate.

KM: Why is it not appropriate for your property?

R4: Truth be told, every bit of square footage I have is taken up by parking places and building structures. So I have no space to put such a pond.

KM: Right. Okay. And then the last question I have regards gray water recycling. Are you familiar with gray water recycling?

R4: Yes, I believe so, for example, my water running off from my laundry room and so forth, that is gray, meaning no longer drinkable, is run through a filtration system. So I can, at a minimum, clean it up enough that I can run it back through my laundry room and really, truly if you're efficient, run it then into our shower system and our toilet water.

KM: Okay. And have you used gray water recycling at this property?

R4: No. If someone could find a way to fit it within our limited structural space, we would like to.

KM: Okay, but you do think that that would be appropriate?

R4: Yes, absolutely.

KM: Okay. Then that's all the questions I have. Do you have anything you'd like to add regarding the topics we discussed?

R4: No, just except that the concept, you know, everything you discussed would need to be – the return on investment. There needs to be a big issue of when you come to me and they say we have gray water recycling, I would hope that they have done their homework to say okay, we understand how much water costs in your vicinity and we can save you this amount of water per month by doing the recycling. And as you'll notice, in six months you will have offset the price to put in this equipment, so that you, then in the end, are adding more money to your bottom line. So everything sounds wonderful, but as a businessperson I need to translate it to how do I justify it from a financial aspect.

(Closing)

RESPONDENT #5: INTERVIEW TRANSCRIPT

KM: To begin, I'd like to ask some questions that will help me better understand how you present your property. What type of experience do you try to provide for your guests?

R5: We try to mix a lot of different elements of Santa Fe. You know, we have, obviously, a Spanish name. We have Victorian building that's sort of the centerpiece of it, which is the house that we're sitting in. We have, you know, Native American flute players that are here, so we use a lot of different artists from a lot of different parts of Santa Fe, but you know the history is definitely a major part of it.

KM: Okay. And how does the exterior setting of your property contribute to this experience?

R5: Well, we're on six acres but we're in the center of town, so we do – you know, it's an important part of – our landscaping is important. The grounds are important. The exterior of the buildings, of course, since we're in Santa Fe are important.

KM: Mm hmm. Does any element in the landscape directly relate to kind of the influences you were speaking of earlier?

R5: I would say on the backside, where we – you know, on the front here, we have the – the big lawn doesn't really contribute to Santa Fe at all because we try not to have grass in Santa Fe. But on the backside, where we – we have more stoned out and so xeriscaped the back – it certainly fits in a little bit better.

KM: Okay, thank you. I have identified some landscape design practices that could be used on a hotel site. I'd like to ask you about your knowledge and perceptions of them. The first questions deal with permeable paving. Are you familiar with permeable paving?

R5: Not really.

KM: Okay. I'd like to read you that definition and then ask you one more question about it.

R5: Okay.

KM: Permeable paving, also called porous pavement is a pervious surface with an underlying stone reservoir to temporarily store surface runoff before it infiltrates into the subsoil, and it can be used anywhere regular pavement or concrete is used. With that in mind, do you feel that permeable paving would be appropriate for use in a resort hotel property?

R5: In certain areas, certainly, yeah.

KM: Okay. In what type of areas could you see it?

R5: Just, you know, with the canales here in Santa Fe, they drop, basically anywhere that they're built to drop. So a lot of that is right out to our sidewalk. So it would particularly help in those areas where it would give someplace for it to go, particularly because our low – you know, we have a spa area right now where we just built the entrance to it, and it sort of funnels all the way down into it. And we have a French drain, so yeah, that would work perfectly there.

KM: Okay. Can you think of any places it wouldn't work?

R5: Not really. I just – I don't think that it's necessarily needed everywhere else and in some places it's not needed.

KM: Okay, thank you. Now I'd like to ask you about rainwater harvesting. Are you familiar with rainwater harvesting?

R5: Yes.

KM: Please describe rainwater harvesting as you understand it.

R5: Catching, basically, runoff from gutters or you know, any rainwater where it's coming down and reusing it for either irrigation or whatever else you could use it for.

KM: Okay. And do you use rainwater harvesting on this property?

R5: We do not. I have – you know, I've worked with it in properties before, but no, we don't use it here.

KM: Okay. Do you feel that rainwater harvesting is appropriate for use in a luxury resort hotel property?

R5: I think it's appropriate. I think, you know, it depends on storage is obviously – where are you going to store water and that's really the biggest thing. Where are you going to put it while you're keeping it until -.

KM: Mm hmm. So space is the problem?

R5: Yeah.

KM: Okay, all right. My next questions are regarding green roofs. Are you familiar with green roofs?

R5: Not particularly. I'd like to hear the definition.

KM: Okay. Let's see here. Okay, these are roofs that are planted over existing roof structure to help reduce building temperatures, filter pollution. And they use a soil medium that's been specially engineering to be light.

R5: Right.

KM: So with that in mind would you think that that would be an appropriate practice to use in a luxury resort hotel property?

R5: I think in Santa Fe it would work, yeah. In our property it could work, you know with the flat roofs that we have. It's more just about the structure and whether it can support it.

KM: Okay, thanks. All right, now I'd like to ask you about retention and detention ponds. Are you familiar with retention and detention ponds?

R5: I think so, but I'd like to hear the definition.

KM: Well, what do you think it is – or they are, I should say?

R5: Basically just reservoirs, I would guess, that are, you know, retention ponds, you're putting a dam into the stream or something like that to save water in order to use it some other way.

KM: Mm hmm, okay. Have you – do you use retention – do you have any retention or detention ponds here and do you think that would be appropriate to use in a property like this?

R5: I'm not sure how it would fit in. No, I don't -.

KM: Okay.

R5: Maybe I don't understand it well enough but I don't know.

KM: Okay, well, I'll read you the detention pond definition here. It's a land depression constructed for the purpose of temporary storage of storm water runoff and gradual release of stored water at controlled rates to recharge the ground water.

R5: Yes.

KM: So it's really just a – a detention pond would be wet for a few days after a rain event.

R5: Okay.

KM: Whereas a retention pond would stay a wet pond.

R5: Permanently?

KM: Mm hmm. So you still don't think that that would be -?

R5: No, I don't know -.

KM: Okay.

R5: Where we'd put into this property.

KM: But in luxury resort hotels in general, do you think that would -?

R5: On a resort environment when you're talking a lot of acres, certainly, yeah, but not necessarily here.

KM: Okay. And finally, I've got some questions regarding gray water recycling. Are you familiar with that?

R5: Yes.

KM: Do you – can you please describe that as you understand it?

R5: Basically using a wastewater treatment plant to, you know, to treat water so it's usable in a – whether on a lawn or on a golf course or something like that.

KM: Okay, thank you. And do you recycle your – any gray water here at this property?

R5: We don't. We're actually looking into doing laundry water recycling. So probably in the next six months we'll put that system in.

KM: So my next question is do you think it's appropriate for use in resort hotel property.

R5: Absolutely.

KM: Okay. And that's all the questions I have for you. Do you have anything you'd like to add regarding the topics we've discussed or any questions?

R5: I don't think so.

(Closing)

RESPONDENT #6: INTERVIEW TRANSCRIPT

KM: Okay. To begin, I'd like to ask some questions that will help me better understand how present your property. What type of experience do you try to provide for your guests?

R6: We're trying to provide an ultra luxury experience.

KM: And how does the exterior setting of your property contribute to this experience?

R6: In a major way. Obviously, the physical beauty is one of many aspects that are crucial to the guest's experience.

KM: Okay. And in what ways does the landscape support that?

R6: Well, obviously, we're in kind of a spectacular setting. We're on 57 acres and we border about 1.5 million acre Santa Fe National Forest. So what it needs to do is really compliment the setting itself, hide any liabilities and really provide a feeling of privacy and luxuriousness in a setting that, what's the right way to say, it really has a sense of place.

KM: Okay, thank you. Does bordering the national forest affect what you've done with the landscaping of the property?

R6: Absolutely, because what we – there's a number of things that go with that, because obviously we're in a semi-arid, high desert, and so we have indigenous plant species that need to be drought-resistant, drought-tolerant and have a reasonably low amount of water requirement to live. And it also needs to blend with the natural environment.

KM: Mm hmm. Okay, thank you. I've identified some landscape design practices that could be used on hotel sites, and I'd like to ask you about your knowledge and perceptions of them. Are you familiar with permeable paving?

R6: Permeable -?

KM: Paving.

R6: I assume that means paving the water can either go below or go up. I can put the words together but I haven't applied them.

KM: Okay. So would you consider permeable paving to be appropriate for use in a luxury resort property?

R6: I think it would just totally depend on the materials and how they're blended and what the appearance is.

KM: Okay. And now I'd like to ask you about rainwater harvesting. Are you familiar with rainwater harvesting?

R6: Mm hmm.

KM: Can you please describe it as you understand it?

R6: As I understand it, you use rooftops and hardscape areas and those are designed to capture and drain water into underground cisterns, which then can be used to harvest the water and be reused as either some irrigation or sprinkling.

KM: Okay, and do you use rainwater harvesting here?

R6: We do. We have nine underground cisterns that capture about 150,000 gallons of water.

KM: How does that work?, You just opened the property in August, right? Have you had the opportunity to use the cisterns yet?

R6: We're using of them, yes.

KM: Yeah. Are they visible to the guests?

R6: The cisterns themselves are completely underground and invisible.

KM: All right. The next questions are regarding green roofs. Are you familiar with green roofs?

R6: Mm hmm.

KM: Okay, and can you describe green roofs as you understand them?

R6: A green roof, as I understand it, would be a material that's organic or there's certainly an upper layer that's organic, that participates with the environment and I don't know in depth, but I could see it being one of two things, either, for instance, you could have like a sod-based roof in a certain environment. Another green roof could be a material that, for instance, either captures or deflects the elements to make the habitat more economically sound.

KM: Okay. And have you used green roof technology at your property?

R6: No.

KM: Did you at your property in Taos?

R6: No. What they did there – there was a lot of elements – we had our own wastewater treatment plant.

KM: Mm hmm.

R6: Which was then designed to go back into the irrigation so we could use the water twice, which we also do here.

KM: Mm hmm.

R6: Another element was we had geothermal water, so that was used in the heating and cooling -.

KM: Mm hmm.

R6: Element, and it was somewhat more efficient and effective. And so those were some of the major elements of it.

KM: Okay. And do you feel that green roofs would be appropriate for use in a resort hotel property?

R6: Yeah, absolutely. I think – have you ever been to the Post Ranch Inn or heard of the Post Ranch Inn?

KM: No.

R6: It's in Big Sur. It's a really, really cool place, and they're very environmentally conscious. And they've actually done – they've done some really cool things. For instance, they're on the very edge of the cliff, about a thousand feet above the Pacific Ocean.

KM: Mm hmm.

R6: And they've built rooms literally right into the cliff, so that – and then the roof kind of comes over it. And so you literally are living underground.

KM: Mm hmm.

R6: But you're also exposed in your – if you go out on the balcony, you're literally over the ocean. And they've done some really cool technologies like that.

KM: Sounds interesting.

R6: Great place for a honeymoon – or an anniversary, I should say.

KM: I bet.

R6: If you and your hubby want to get -.

KM: Yeah, I'll have to mention that to him.

R6: Mm hmm.

KM: Okay. Now I'm going to ask you about retention and detention ponds. Are you familiar with these?

R6: Retention ponds, I assume that's where excess water is ponding, and I don't know if that is designed to then be further used or not.

KM: Mm hmm. Okay. I've got a definition of detention pond, and I'll read that to you. A detention pond is a land depression constructed for the purpose of temporary storage of storm water runoff and gradual release of stored water at controlled rates. And then a retention pond would be similar but would stay wet more permanent – on a more permanent basis. Whereas the detention pond would probably only be wet for a few days after a rain event.

R6: Although in New Mexico they're probably all detention ponds.

KM: So with that in mind would you think that that would be appropriate for use in a resort hotel property?

R6: Yeah, we actually have a retention pond. As you leave the resort it will be on your left at – towards the very end.

KM: Is that – where is that collecting water from?

R6: Kind of the whole area. I mean the whole area is sort of a flood zone, for lack of a better term. So we have an arroyo that runs through the property.

KM: Mm hmm.

R6: So since we're at the base, we're at the foothills of the Sangre de Christos. Obviously, it rains on the mountain and all the water all runs through the property. So it, I guess the best answer is it captures water from above.

KM: Okay, thank you. And finally, I've got some questions regarding gray water recycling. I think you were talking a little bit about that earlier. Are you familiar with gray water recycling?

R6: You bet.

KM: And can you please describe that as you understand it?

R6: Well, that's the capture treatment and release of water – of dirty waters essentially, that you can use in an environmentally safe way. And for us we kind of are creating a greenbelt that will be designed to kind of create this nice scenic area.

KM: Where is the greenbelt going to be?

R6: It will be at the very beginning of the property right past the retention pond as you exit. It's not green yet, though.

KM: All right. So I assume you do feel that gray water recycling is appropriate for use in resort hotel properties.

R6: Absolutely. Obviously there are a couple issues such as odor and safety that have to be worked out.

KM: Mm hmm. All right. That concludes my questions for you. Do you have anything you'd like to add regarding the topics we've discussed or any questions for me?

R6: No. I think that they're kind of the next wave. I think most of the, hopefully, most resorts will be built with the ongoing and growing environmental consciousness that's necessary.

KM: When did you join this property?

R6: I was here from about a year before the property was built, during the construction.

KM: And was it – what kind of role did these type of practices play in the early stages of construction?

R6: Well, it's interesting, because there's always – when we built the Inn of the Anasazi we considered ourselves a green hotel, using nontoxic materials and a lot of green at the time -. And what's interesting to me is what used to be green you could also consider just economically efficient and so on. Now, you have to spend more monies to accomplish additional objectives. And so, you know, here why don't you do solar. You know, and obviously we have design issues from an aesthetic standpoint. But I'd like to see in New Mexico, a lot more attention to solar capture. We have plenty of wind a lot of the year, so that also -. I was also on the remote eastern tip of Maui for a couple of years and power is a huge issue there to the point that we were thinking about doing a mini generating station that was going to be like a hybrid of natural gas but that can – could then use either wind or solar. And from – and we sold the property before we got there. It was very intriguing to me when you get in the hybrid that it becomes far more complex. But the energy efficiencies are huge, potentially.

(Closing)

RESPONDENT #7: INTERVIEW TRANSCRIPT

KM: To begin, I would like to ask some questions that will help me better understand how you present your property. What type of experience do you try to provide for your guests?

R7: We try to provide an experience that is like home. Casual, not corporate; not so studied like the competition.

KM: And how does the landscape work to create those feelings?

R7: Hugely. Street appeal and the exterior of the property are extremely important to the owner and to the guests. Most of the traffic we get is from people seeing us from the street. We're an oasis on [this street]. It keeps them coming back, we're not your typical hotel.

KM: All right. I've identified some landscape design practices that could be used on a hotel site, and I'd like to ask you about your knowledge and perceptions of them. And the first questions deal with permeable paving. Are you familiar with permeable paving?

R7: Yes.

KM: Do you use permeable paving at your property?

R7: Not unless you consider gravel permeable paving. About half our parking is just gravel. We were going to pave it, but the only way we could afford to keep it permeable was by keeping it gravel. So...it might not be elegant, but -.

KM: So do you think permeable paving is appropriate for use in a resort hotel property?

R7: Absolutely.

KM: All right, thank you. Now I'd like to ask you about rainwater harvesting. Are you familiar with rainwater harvesting?

R7: Yes.

KM: Can you describe rainwater harvesting as you understand it?

R7: Yes. You capture rainwater that comes off roofs into barrels or store it underground.

KM: Do you use rainwater harvesting at this property?

R7: Mm hmm. We've got thirty barrels around the property which we put directly into the gardens. People are always asking where we get the barrels, can I use I at my house?

KM: Do you feel rainwater harvesting is appropriate for use in a resort hotel property?

R7: Here, yes, but not in Colorado. There they own all that falls from the sky.

KM: Really?

R7: Yeah, they're worried about replenishing their underground aquifer.

KM: Okay. And then the next questions are regarding green roofs. Are you familiar with green roofs?

R7: No, only very sketchy.

KM: Okay, I'll read a definition. Green roofs are rooftops planted using an engineered soil, so it's light enough to put on the roof structure. And they've got a lot of benefits, they help reduce interior building temperatures filter pollution and capture stormwater runoff.

R7: That might be appropriate as far as going green, but not appropriate from a cost standpoint. It would be cool, but...If we felt there was no way for it to cause any problems we might consider it, but cost is a major concern.

KM: All right, now I'd like to ask you if you are familiar with retention and detention ponds.

R7: A little, but maybe not enough to speak to it. We have looked into constructing something like that on a sub-parking level.

KM: Sub-parking level?

R7: Just sending water underground with a structure over it. But that didn't go far. We wanted to find a way to keep the water that entered the site here. The city punishes you if water leaves your site. But that's the reason our parking lot isn't fully paved, to keep water from leaving the property. The trees really count on the water, and their roots are basically in the parking lot.

KM: Do you think retention and detention ponds are appropriate for use in resort hotel properties?

R7: Absolutely, if you have the space.

KM: Okay. Now I would like to ask you about gray water recycling. Are you familiar with gray water recycling?

R7: Yes.

KM: Can you describe gray water recycling as you understand it?

R7: You put water to use that comes from things like laundry and dishwashing.

KM: And do you use gray water recycling at this property?

R7: No, not at this time. We looked into it, but couldn't find a viable way to catch it. So we studied it and abandoned it. We did use it during a drought a few years ago. Watering was restricted to once a week, and with all the plants here...so we relied on our barrels and backwash from the swimming pool. We had to put in additives and let it sit because of all the chemicals in it.

(Closing)

APPENDIX C

FAMILIARITY WITH, OPINION OF, AND USE OF
SELECTED PRACTICES BY RESPONDENT

C.1 Familiarity With, Opinion of Appropriateness, and Current Use of Selected Practices:
Respondent One

	Respondent is familiar with the practice	Respondent viewed practice as appropriate in resort hotels	Respondent's property currently uses the practice
Graywater recycling	Yes	Yes	Yes
Retention and detention ponds	Yes	Yes	Yes
Green roofs	No	Yes	No
Rainwater harvesting	Yes	Yes	Yes
Permeable paving	Yes	Yes	No

C.2 Familiarity With, Opinion of Appropriateness, and Current Use of Selected Practices:
Respondent Two

	Respondent is familiar with the practice	Respondent viewed practice as appropriate in resort hotels	Respondent's property currently uses the practice
Graywater recycling	No	Yes	No
Retention and detention ponds	No	Yes	No
Green roofs	Yes	Yes	No
Rainwater harvesting	Yes	Yes	No
Permeable paving	No	Yes	No

C.3 Familiarity With, Opinion of Appropriateness, and Current Use of Selected Practices:
Respondent Three

	Respondent is familiar with the practice	Respondent viewed practice as appropriate in resort hotels	Respondent's property currently uses the practice
Graywater recycling	Yes	Yes	Yes
Retention and detention ponds	Yes	Yes	No
Green roofs	Yes	No	No
Rainwater harvesting	Yes	Yes	No
Permeable paving	No	Yes	No

C.4 Familiarity With, Opinion of Appropriateness, and Current Use of Selected Practices:
Respondent Four

	Respondent is familiar with the practice	Respondent viewed practice as appropriate in resort hotels	Respondent's property currently uses the practice
Graywater recycling	Yes	Yes	No
Retention and detention ponds	No	No	No
Green roofs	No	Yes	No
Rainwater harvesting	Yes	Yes	No
Permeable paving	No	Yes	No

C.5 Familiarity With, Opinion of Appropriateness, and Current Use of Selected Practices:
Respondent Five

	Respondent is familiar with the practice	Respondent viewed practice as appropriate in resort hotels	Respondent's property currently uses the practice
Graywater recycling	Yes	Yes	No
Retention and detention ponds	Yes	No	No
Green roofs	No	Yes	No
Rainwater harvesting	Yes	Yes	No
Permeable paving	No	Yes	No

C.6 Familiarity With, Opinion of Appropriateness, and Current Use of Selected Practices:
Respondent Six

	Respondent is familiar with the practice	Respondent viewed practice as appropriate in resort hotels	Respondent's property currently uses the practice
Graywater recycling	Yes	Yes	No
Retention and detention ponds	No	Yes	Yes
Green roofs	Yes	Yes	No
Rainwater harvesting	Yes	Yes	Yes
Permeable paving	No	Yes	No

C.7 Familiarity With, Opinion of Appropriateness, and Current Use of Selected Practices:
Respondent Seven

	Respondent is familiar with the practice	Respondent viewed practice as appropriate in resort hotels	Respondent's property currently uses the practice
Graywater recycling	Yes	Yes	No
Retention and detention ponds	Yes	Yes	No
Green roofs	No	Yes	No
Rainwater harvesting	Yes	Yes	Yes
Permeable paving	Yes	Yes	No

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BIOGRAPHICAL INFORMATION

Kristen Mitrakis was born and raised in Texas. She grew up in Westlake Hills, just outside of Austin. There she developed a love of lakes and rivers, trees and shrubs, and interesting topography.

Kristen graduated from the University of Texas at Austin in 1991 with a degree in Art. She worked in advertising and graphic design until 2004 when she discovered the master's program in Landscape Architecture at the University of Texas at Arlington and decided to make a career change. Ninety-two credit hours, four years, four homes, two cities, and one child later, Kristen will graduate in December 2008. She plans to reside in Connecticut with her husband, Nick, and their daughter, Katie.