A COST COMPARISON OF SUSTAINABLE VERSUS CONVENTIONAL INTERIOR FINISHES FOR A LUXURY HOTEL SUITE PROTOTYPE

By

ANNE MARIE SPECK

Bachelor of Science in Interior Design

Oklahoma State University

Stillwater, OK

2010

Submitted to the Faculty of the
Graduate College of the
Oklahoma State University
in partial fulfillment of
the requirements for
the Degree of
MASTER OF SCIENCE
May, 2011

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Thesis Approved:

Dr. Randall Russ

Thesis Adviser

Dr. Paulette Hebert

Dr. Murat Hancer

Dr. Mark Payton

Dean of the Graduate College

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CHAPTER I

INTRODUCTION

Sustainability in terms of design is the use of buildings and building components without negatively impacting natural resources. As the concept of sustainability has become better known among the general population, it has changed from a theory to a movement. Growing consciousness of sustainable efforts has aided in creating new aspects of sustainability, one of which is sustainable design (Mang, 2001).

Sustainable design can be seen as "development that meets the needs of the present without compromising future generations' ability to meet their own needs" (Brundtland & Khalid, 1987), while Stoessel (2009) views sustainable design as "a holistic approach that encompasses the design as well as the economic and social aspects within a community" (pg 31). As various industries begin to implement sustainable practices into their management methods, sustainable design needs are equally important in stemming the negative impact of actions on our natural resources.

The hotel industry highly impacts the environment. Hotels negatively harm the environment in regards to sustainability and their carbon footprints. Hotels use 40 percent of all the energy worldwide; in terms of wastefulness, the hotel industry is also one of the worst in the world (Persic-Zivadinov, 2009; Gunter, 2006). Although this seems to be reason enough for hospitality design firms to adopt sustainable design principles into their practices,

attitudinal and financial aspects have kept firms from doing so (Tzschentke, Kirk, & Lynch, 2008). Two of the primary concerns among owners of hotels are the perception of higher costs of sustainable design methods, and the connection between adopting sustainable practices and a reduction in the hotels and resorts standards (Tzschentke et. al., 2008).

This project aims to provide evidence for the proposed hypothesis: sustainable products and materials can be applied to the interior design of a luxury hotel suite and attached guest room, without identifying more than a 15% increase in cost. This percentage was selected based on the additional amount an environmentally conscious traveler would be willing to pay when given the option between a sustainably designed hotel and a conventionally designed hotel. Through a review of literature, the barriers to the adoption of sustainable design in the hotel industry will be identified. Once these barriers are revealed, a prototype design for a sustainable, luxury hotel suite and attached guest room and a conventional, luxury hotel suite and attached guest room will be developed and compared based on total cost for materials, furniture, and permanent and portable light fixtures. It is anticipated that the sustainable design for the luxury hotel suite and attached guest room will not cost significantly more than a conventional design for the same luxury hotel suite and attached guest room. The main objective of this study is to determine whether the proposed hypothesis is accurate.

Listed below are several definitions of terms used throughout this paper. These definitions were delineated according to the context of the terminology within this paper: Construction Documents: a set of plans that delineate the design, dimensions, permanent and portable light fixture placement, furniture placement, and materials. Construction documents are primarily used to guide contractors in the construction of a building.

Luxury Hotel: a hotel that has implemented a set of features that surpasses typical hotel standards for the comfort of their customers. These comforts that equate to a hotel being portrayed as luxury include atmosphere, appearance, and quality of décor.

Sustainable Design: a method of design that includes the construction methods of a building, and/or the furnishings, fixtures, and finishes specified for a building, which takes into consideration the effect of the design on the surrounding environment.

CHAPTER II

REVIEW OF LITERATURE

Sustainable Design in the Hotel Industry

Sustainability has recently become a well known concept; however, throughout the hotel industry there is a reluctance to practice sustainable design (Tzschentke et. al., 2008). While most research shows that there are many benefits to the adoption of sustainable design in the hotel industry, there are a few perceptions among hotel owners that hinder the progression of sustainable design in the hotel industry. These perceptions have created a barrier for the spread of sustainability throughout the hotel industry; of these, the parsimonious attitude of many hotel owners and operators in conjunction with their interpretation of the 'green premium' is the largest barrier (Persic-Zivadinov, 2009).

This study will review the relationship between sustainable design and hotel design. The literature review will present a background of sustainable design within the hotel industry. Current beliefs of sustainability by hotel owners and tourists, benefits and barriers to its progression, and financial aspects will be discussed. An overview of the rating system for LEED, Leadership in Energy and Environmental Design, certification requirements will be presented, followed by a presentation of hotels and resorts that are LEED certified. The literature review will conclude with a review of sustainable building strategies and materials, and interior furnishings and finishes.

Current Perceptions and Actions

In the past, sustainability was viewed as an added value, not a necessity. As a value, the concept of sustainability could be forgotten when barriers such as financial and economic problems arose (Tzschentke et. al., 2008). In the 1980's an increased awareness of natural resources and concerns including pollution affecting air quality began; today these are problems that we are unable to ignore (Horobin & Long,1996). One hotel owner in an interview regarding sustainability said, "We are holding the environment and resources of the country in trust for future generations and we have a responsibility to pass these on in good condition" (Horobin et. al., 1996, pg 17).

The hotel industry and the environment are highly dependent on each other; for the hotel industry to remain successful, the environment cannot be changed due to harmful greenhouse gases (GHG). For the environment not to be affected by climate change, the hotel industry must reduce the amount of GHG that the facilities emit by implementing sustainable practices. Emissions from the hotel industry are responsible for 5% of all GHG emissions worldwide, while all building types, including hotels, are responsible for 40% of GHG emissions (Persic-Zivadinov, 2009). Without implementing sustainable practices into the designs and construction of hotels, the natural environment that attracts some tourists will be negatively affected and could cause the hotel industry to suffer.

There is conflicting research regarding sustainable design; whether it is just a fad, or if it can be successfully implemented as an essential business aspect. Based on his survey, Tzschentke et. al. (2008) believes it is a fad, presuming current sustainable measures are being conducted for superficial purposes and marketability, while Stossel (2009) has found the sustainability movement to be indispensable for the future success of hotel and resort

companies. LaVecchia (2008) and Aker (2008) found evidence that aspects of the sustainable movement will surpass the initial eagerness of business owners to conform to this new trend, and doubt that sustainability is simply a fashion that is going to go out of style. There are indications that sustainable design will not only survive the initial fervor, but when implemented, the design of the buildings can educate the users and inspire them to take care of the buildings and encourage sustainability in other aspects of their lives (Wolff, 2009; Thibaudeau, 2008).

Barriers of Implementation

While most existing research illustrates that there are many benefits of sustainable design to the hotel industry, there are a few barriers that hinder the progression of the relationship. To identify some barriers to implementing sustainable design practices, Tzschentke et. al. (2008) conducted a survey of hotel owners. Many interviewees said that low awareness of sustainable practice methods by the hotel staff and guests was a reason for the hotel owners to resist pursuit of sustainable design practices. The interviewees commonly believed that their actions had little impact on the health of the environment whether positively through sustainable practices, or negatively through conventional practices. Due to a feeling of insignificance, the hotel owners found the progression towards implementation to be unlikely.

A lack of knowledge about sustainable design has been identified as another barrier. In a study conducted by Persic-Zivadinoc (2009), 74% of the respondents identified that they did not realize that sustainable practices would benefit the hotel financially. Some owners who were interested in implementing sustainable practices did not know how to begin. Other hotels that had previously attempted to utilize sustainable strategies had not done so properly

(Persic-Zivadinov, 2009). Lack of education also resulted in a misperception of the hotel guest's beliefs towards sustainable design applications. Some interviewees assumed that their customers would equate sustainable design with a drop in the standards of the hotel's principles (Tzschentke et. al., 2008). The above mentioned barriers have negatively influenced the implementation process of sustainable design in the hotel industry. The benefits will now be revealed to allow for comparison.

Benefits to Sustainable Hotel Practices

A hotel that has implemented sustainable practices has the opportunity to market itself to attract environmentally conscious travelers. Environmentally conscious travelers can be classified as those who select a hotel that has applied sustainable design strategies over a conventionally designed hotel when there is an option; 80 percent of all travelers have been found to fall into this category (Tzschentke et. al., 2008; Horobin et. al., 1996). Supporting research by Tuttle (2008), showed that 87% of tourists fall into the environmentally conscious traveler classification. A compelling motive for hotel and resort owners to begin sustainable design initiatives on their future and/or existing buildings would be the benefits their company would achieve from converting to sustainability. Through interviews with the owners, Stabler and Goodall, (1997) determined the way to convince hotel owners would be to show them that implementation of sustainable practices would reduce energy costs, and attract environmentally conscious travelers leading to higher profits. Surveys have shown that environmentally conscious travelers will pay up to 20 percent more to stay in a hotel that has applied sustainability to the design (Wolff, 2009). Buell (2009) found 95 percent of all travelers expect the hotel industry to begin employing sustainable strategies to individual

hotels and resorts. Sustainable design is proving to be a competitive characteristic in this industry.

If presented properly, a guest staying in a sustainable hotel can have the opportunity to distinguish sustainable design versus conventional design. This recognition will make a lasting impression of the hotel and the practice of sustainable hospitality design. By implementing sustainable practices, the hotel is protecting the health and wellbeing of their travelers. Sustainable buildings will assist in improving the traveler's health, putting them at physical and mental ease (Persic-Zivadinov, 2009). In addition, a particular sustainable hotel can attract environmentally conscious travelers; therefore sustainable design can be a positive marketing strategy (Timur & Getz, 2009).

By using sustainable building strategies and materials, a hotel can lower its energy usage by 20-50 percent, expect a 40-50 percent reduction in water usage, a 70 percent reduction in solid waste, and reduce its carbon emissions by 35 percent (Persic-Zivadinov, 2009; Buell, 2009). These factors are highly beneficial in an industry that puts the control of the energy and water usage in each individual room in the hands of its users.

Financial Aspects of Sustainable Hospitality Practices

The various financial aspects of sustainable design have been viewed as both benefits and barriers in the process of implementing sustainability. Persic-Zivadinov (2009) coined the term 'green premium' as the overall cost difference between creating a sustainable building versus a conventional building. Owners and developers of hotels believe that there is at least a 10% green premium, and this preconception has created a barrier. The green premium for sustainable hotels had been an additional 1-2 percent as opposed to a hotel that had used conventional strategies in the construction and design.

For hotels that have implemented sustainable strategies, there has been a gradual return on investment due to energy savings, ranging from two-five years before the initial supplementary costs are recouped. After the return on investment has been achieved, the hotel building owners will see a substantial profit from the energy savings (Aker, 2008). Bauld and McGuinness (2007) estimated that for every square foot of building space, a $6 savings due to energy efficiency would occur. After a 20 year period, it has been typical for a sustainable building to see a profit of over ten times the original investment (Persic-Zivadinov, 2009).

Higher initial prices for sustainable materials and finishes have been noticed by the owners when comparing sustainable materials and finishes to conventional materials and finishes for the interior of hotels. Typically this has been addressed by offsetting costs of the sustainable materials with a price cut in another interior area. A common way to cut costs to compensate for the higher costs of sustainable materials has been to use salvaged or reclaimed furniture and/or materials (LaVecchia, 2008).

Sustainable buildings have the ability to physically benefit the users, including the hotel staff and the travelers (McKinley, 2008). Sustainable practices can assist in creating healthier indoor air quality. Indoor air quality can be improved through the reduction of the toxic substances and fumes that are a result of volatile organic compounds (VOC) (Nalewaik, 2009). The air quality of a space is affected by these VOCs and other toxic fumes that can be emitted from conventional building materials and interior finishes. Indoor air quality is ranked as one of the top five public health risks by the U.S. Environmental Protection Agency (Montgomery, 2005). Considering that the average person spends 90% of their day inside, indoor air quality is very important (NeoCon, 2009). Hoffman and Henn (2008)

showed that the performance of the users in the facility could increase 6 percent to 26 percent. Through the improvement of air quality and the use of natural lighting, the facility can put the users at ease physically and mentally (Persic-Zivadinoc, 2009; Nalewaik, 2009).

Tax and government incentives are two more financial benefits of the implementation of sustainable strategies to hotel design; these are two benefits that are often overlooked. These incentives are a result of the certification of a facility that was designed according to sustainable standards set by the Leadership in Energy and Environmental Design (LEED) and the U.S. Green Building Council (USGBC). LEED certified buildings have the opportunity for rebates as well as the tax and government incentives for the incorporation of sustainable practices (Persic-Zivadinoc, 2009).

LEED Certification

Leadership in Energy and Environmental Design is a system that was developed by the USGBC in 1998 (Zimmerman & Kibert, 2007). LEED is a certification system that is internationally known, used to help distinguish and recognize companies for their work in implementing sustainable practices into their business (USGBC, 2009). The LEED rating system sets the standards for the construction of environmentally sustainable buildings. The USGBC created this system using easily understood terminology, regardless of the amount of sustainable practice knowledge the user had (Horst, 2008; Zimmerman et. al., 2007). Making these sustainable standards universally known and easily understood, USGBC is helping to hasten the worldwide adoption of sustainable principles and practices (Persic-Zivadinov, 2009).

There are four levels of LEED certification that a building can achieve, based on the amount of sustainable practices a company uses while constructing and designing the

building. The four levels of certification are LEED Certified, LEED Silver, LEED Gold, and LEED Platinum; the Platinum certification is the most prestigious (Retzlaff, 2008). Areas that are taken into consideration when determining the certification level are based on sustainability of site development, energy efficiency, and indoor environmental quality.

Different rating systems are utilized for each type of construction, such as LEED for New Construction, LEED for Existing Buildings, and LEED for Core and Shell. Each rating system differs slightly, so it is important to understand and follow the appropriate rating system. The rating system for new construction used by the USGBC is based on five sections of sustainable strategies. These sections are Site Planning, Management of Water, Energy Usage, Materials Used, and Indoor Air Quality (USGBC, 2009). Within each of these sections, a building has an opportunity to accumulate performance credits for applying certain sustainable strategies. A performance credit consists of requirements: the applicant states the intent, the requirements for the credit, and provides proof that the practice was successfully implemented according to the standards of the credit (Zimmerman et. al., 2007). The number of performance credits earned designates the certification level. A sixth section, Innovation and Design Process, is considered an extra credit section for additional performance credits towards certification (Stoessel, 2009). Once the performance credits are awarded by the USGBC, they are then compared to a LEED Scorecard to designate the classification level. The scorecard reads as follows:

Table 1

LEED Scorecard

Certification Level	Minimum Credits	Maximum Credits
LEED Certified	26	32
LEED Silver	33	38
LEED Gold	39	51
LEED Platinum	52	69

Requirements

The five step process of gaining LEED certification starts with registration. When registration occurs during the preliminary design phase of the construction process, the chances of achieving LEED certification are improved (Bauld, 2007). Registration requires a one time fee that costs between $600 for non-members of the USGBC and $450 for USGBC members (Retzlaff, 2008). The second step is to track and document the improvements and/or upgrades that are achieved. The next steps are to prepare and submit the application for review. A certification fee is due with the application. The fee is dependent upon several factors such as the square footage of the building, but averages $2,000 (Retzlaff, 2008). It is very important for each step of the project to be documented correctly. If a particular performance credit needs more documentation in order for the credit to be awarded, it will cost the applicant an additional fee. Any building that is awarded LEED Platinum certification is given a rebate for all certification fees. The final step of the process is the review from the USGBC (USGBC, 2009). At this time, the USGBC requires a third party representative to inspect the building to confirm the sustainable practices were completed as stated in the application (Bauld, 2007).

Certified Hospitality Buildings

The hotel industry has significantly lower numbers of certified buildings compared to other industries. However, the popularity of LEED certification for the hotel industry is rapidly growing. In 2009, there were only 15 LEED certified hotels, 50 more hotels were expecting to be certified the end of the year, and 550 more were registered for certification (Stoessel, 2009).

The Inn and Conference Center at the University of Maryland was the first LEED certified hotel. When compared to a conventional hotel of the same size, the Inn and Conference Center are 35 percent more efficient. Through the use of energy saving elevators and ventilation systems with recovery units, this property was extremely energy efficient, helping it to save about 80,000 dollars per year (Gunter, 2005).

Two more LEED certified hotels, The Nines Resort in Portland, Oregon and the Proximity Hotel in Greensboro, North Carolina, were both able to recoup their additional construction costs within several years. The Nines Resort received LEED Silver certification, and cost only 1.2 percent more than if it had been conventionally designed. Within 18 months, this loss had been recouped. The Proximity Hotel received LEED Platinum certification, the first hotel to achieve the Platinum LEED status. Due to the extent of the sustainable aspects of the design of this hotel, a 7 percent construction budget increase was necessary, significantly higher than The Nines Resort. However, it has been estimated that within 4 years, this 7 percent loss will be recouped (Stoessel, 2009).

The Pearl River Tower in China was designed to be the most prestigious and energy efficient LEED certified hotel. This building saved almost 60 percent in energy consumption when it was compared to a building of similar size. During the preliminary design process,

the Pearl River Tower was designed to be a net zero-energy hotel. The concept of a net zero-energy facility refers to a building that is not dependent on the surrounding community for any additional energy. Although it was not possible for the building to be completely self sufficient due to city restrictions, the Pearl River Tower was still closer to net zero-energy than any other hotel. The hotel's site, available hydroelectric energy sources and local building materials were considered during the design process which contributed to this hotel's reputation for energy efficiency (Frechette, 2009).

Building Strategies

Buell (2009), presented a new concept to strive for in the sustainable movement; "On the horizon of the green building movement is regenerative buildings – buildings that heal or repair some of the damage that has been done" (p. 28). A regenerative building has the capability to absorb some of the carbon dioxide emissions that are produced from surrounding buildings. Construction of this type of building is anticipated to begin towards the end of the evolution process of the sustainable design movement. Currently, the goal of the sustainable design movement is to begin construction on more efficient buildings that do less damage than our current facilities, and to progress towards net-zero buildings that do no harm to the environment (Buell, 2009).

Hydroelectric power is a sustainable opportunity which may be available depending on the location of the building site. This type of power takes advantage of elements available in the particular location. For example, wind turbines can be used to generate energy in windy locations. Another site could take advantage of nearby water source and use this to generate power for the facility (Kouletsis, 2009).

There are several common building strategies that can be incorporated into the structural design of a hotel to allow for more efficient use of energy and natural resources. One strategy that can be considered when designing the layout of spaces is to allow for natural lighting to be maximized. With an increased amount of natural light available, less artificial lights will be necessary during the day, thus cutting electricity usage (Buell, 2009). Another strategy commonly used is natural ventilation. Through the use of louvers on windows, air circulation can be achieved without using any energy, and air quality within the building can be improved. By employing building strategies such as low flow plumbing fixtures, natural lighting, and natural ventilation, the heating, venting, and cooling (HVAC) equipment can be downsized, resulting in higher efficiency of the building (Buell, 2009).

Repurposed and reclaimed construction material are classified as a material that is made from recycled fiber content, or was originally a part of something else. Sheetrock that is made from recycled content and wood that has been reclaimed from the demolition of another building can both be used to reduce the negative environmental impact of the construction process (Buell, 2009). By using these materials the building will not only be constructed with items that are less wasteful, but the use of these items can also improve the air quality within the building before any interior finishes are even selected.

Interior Fixtures, Furnishings and Finishes

Interior materials have the ability to help reduce the impact on the environment, and also improve the interior quality of the facility. By utilizing an efficient method of lighting, the hotel owner can reduce the electric usage of the facility. One way to reduce the electric usage is by incorporating motion sensor controlled lights in public and private areas of the hotel (Buell, 2009). The actual lamp that is used can also allow for less energy consumption.

A more energy efficient type of lighting called light emitting diodes, or LED, converts most of its energy to light. Traditional lamps, such as incandescent, waste the majority of their energy through heat (LaGesse, 2009).

Air quality can be improved by avoiding VOC, volatile organic compounds, carcinogens such as urea-added formaldehyde, a product often found in case goods, seating, and wall panels. Formaldehyde is one of the most common VOC pollutants in interior spaces (Montgomery, 2005). VOCs can create health issues for the user such as headaches and respiratory problems (Physical-Supports census, 2005). A typical finish for a wood floor has a VOC level of 15 percent to 30 percent, while an environmentally friendly finish has a VOC level of 6 percent or less. Adhesives, paints, caulk, and varnishes with low VOCs are available for flooring and wall covering installations (Stoessel, 2009; Fox, 1996).

Many interior finishes such as carpeting, wall coverings, and ceiling tiles can be made from recycled fiber content, and then be recycled again when replacement of the materials is necessary (Stoessel, 2009). Brickman (2009) defined sustainable flooring as "any product that offers long-term durability and lifespan while consuming the least total resources after the installation is complete" (p. 36). Brickman's definition means that the flooring should come from a reclaimed or recycled material such as wood from the demolition of another building or recycled content carpet tiles, or a fast growing wood species such as bamboo or palm lumber. The definition also means that the flooring should originate at nearby location in order to reduce shipping costs (Mahoney, 2005).

A review of a directory provided by the NEWH Sustainable Hospitality organization featuring sustainable materials available to hospitality design firms revealed that many of these products range in price. The prices of some products were comparable to conventional

materials of the same quality, while the costs of others were significantly higher in comparison. Typically, the higher cost of one sustainable interior material has been addressed by offsetting the extra cost with a price cut in another area. A common place to cut costs to compensate for higher costs of sustainable products has been using salvaged or reclaimed furniture and/or materials (LaVecchia, 2008).

Summary

A review of current literature verifies that the main factor preventing sustainable design in the hotel industry from gaining popularity is the concept of 'green premium' (Persic-Zivadinov, 2009). However, only a few of the hotels that have actually implemented sustainable practices into the designs of their facilities have reported even minimal green premium concerns. They reported that construction and furnishing costs were only slightly higher than the estimated costs of similar conventional designs. Sustainable hotels have shown that extra costs have been recouped after several years, due in part to the high efficiency of the hotel energy systems. With more affirmative information that the cost differences between sustainable design processes and conventional design processes are not as drastic as they are perceived, owners of hotels may become more willing to consider sustainable design processes for the design or renovation of their hotels in the future.

CHAPTER III

METHODOLOGY

Proposed Plan to Test Problem

By creating a prototypical design for a sustainable, luxury hotel suite and attached guest room and a conventional, luxury hotel suite and attached guest room, a better understanding of the cost effectiveness of sustainable design in the hotel industry will be seen. The design development process will assist in discerning an estimated cost difference between sustainable design processes and conventional design processes. A cost analysis of the two hotel suites and attached guest rooms will be calculated and the extent of that difference will be presented.

Phase One: Preparation

This project will use the same set of construction documents for the comparison in cost of materials, furniture and permanent and portable light fixtures for a sustainable versus a conventional luxury, one bedroom hotel suite with attached standard guest room in South Central Texas. A dimensioned floor plan, area plan, furniture plan, and reflected ceiling and lighting plan will be designed based on the layout of a typical hotel suite and attached guest room to make up the set. These construction documents will be designed with elements typically found in a luxury, one bedroom hotel suite and a standard guest room.
By using the same construction documents for both the sustainable design and the conventional design, extraneous variables will be reduced.

Phase Two: Design Development

The set of construction documents of a luxury, one bedroom hotel with attached guest room designed in Phase One will be used as dependent variables. Sustainable materials,

furniture, and permanent and portable light fixtures will be applied to one set of the construction documents. For comparison, conventional interior materials, furniture, and permanent and portable light fixtures will be applied to a second set of the dependent variables. All materials, furniture, and permanent and portable light fixtures will be selected from manufacturers who specialize in hospitality products, found through the use of the NEWH Resource Directory and Hospitality Design trade publications (The Network of the Hospitality Industry).

A custom rendered furniture plan for each design will be provided, along with a keyed furniture plan and schedule, and keyed reflected ceiling and lighting plan. Each design will be presented using computer generated, three dimensional perspectives of the suite bedroom and suite living space and two dimensional elevations throughout the space.

Phase Three: Specifications

The initial retail costs for all materials and furniture within the suites and attached guest rooms as well as the permanent and portable light fixtures will be calculated and organized into a proprietary set of specifications for both the sustainable and conventional designs. The specification for each product will include the retail cost of the material or item, the quantity used in each room, and sustainability considerations and key attributes where applicable. The cost will be quoted by the manufacturer's sales representatives working in South Central Texas. The cost of labor, shipping, and taxes will not be calculated during this study.

Phase Four: Cost Analysis

The final stage of this project will be to analyze the cost efficiency of a sustainable hotel suite and attached guest room compared to a conventional hotel suite and attached guest

room. Initial costs will be considered, but maintenance and energy savings of the materials and permanent and portable light fixtures used in the design will not be of consideration. Through a comparison of the two sets of specifications, the cost effectiveness of sustainable design in the hotel industry in South Central Texas will be analyzed.

CHAPTER IV

FINDINGS

This chapter explains the design process in accordance with the four phases: Preparation, Design Development, Specifications, and Cost Analysis. The concluding chapter will examine the results of the cost analysis, discuss the importance of the findings, and suggest how this project can relate to future studies.

Phase One: Preparation

This section began the design phase of the prototypical construction documents. Due to the prices being specified by sales representatives in the South Central Texas area in Phase Three, existing hotels in the South Central Texas area were used as precedents to determine the current design trend of hospitality interiors. These hotels inspired the design of the floor plan for the luxury hotel suite with attached guest room. The location of the suite within the hotel would be in an upper corner of a building; this was selected to take advantage of a panoramic view and to maintain a high level of luxury. The architectural features listed in Phase One of the methodology were included in the design.

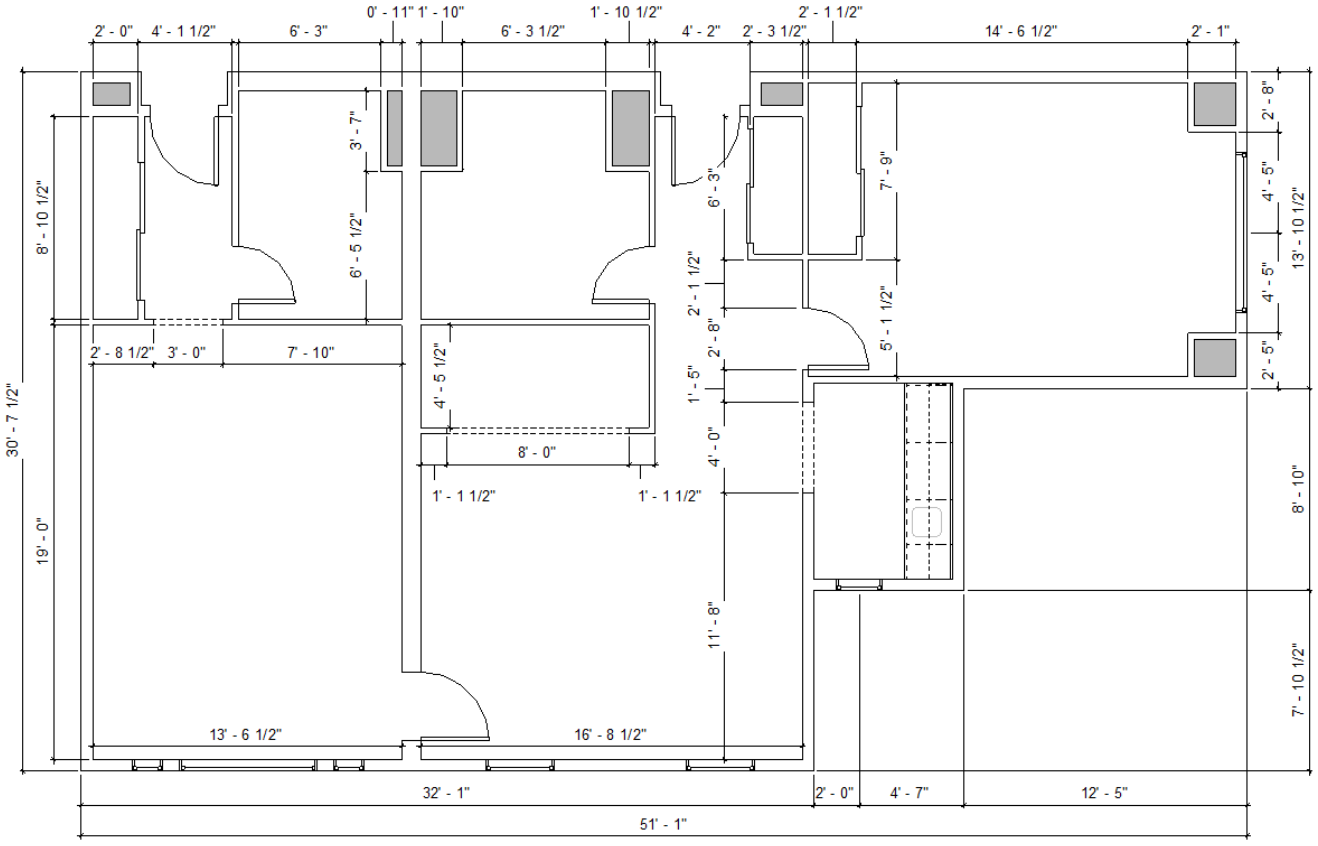

Fig. 1: Dimensioned Floor Plan

The total square footage of the floor plan for the luxury suite and attached guest room were based off information obtained in *Evidence Based Design for Interior Designers* (Nussbaumer, 2009, p. 188). According to the text, the average size of a standard guest room is 375 square feet, while a luxury two bedroom suite can be up to 1,480 square feet. The total area for the attached guest room is 378 square feet; the one bedroom suite is 740 square feet.

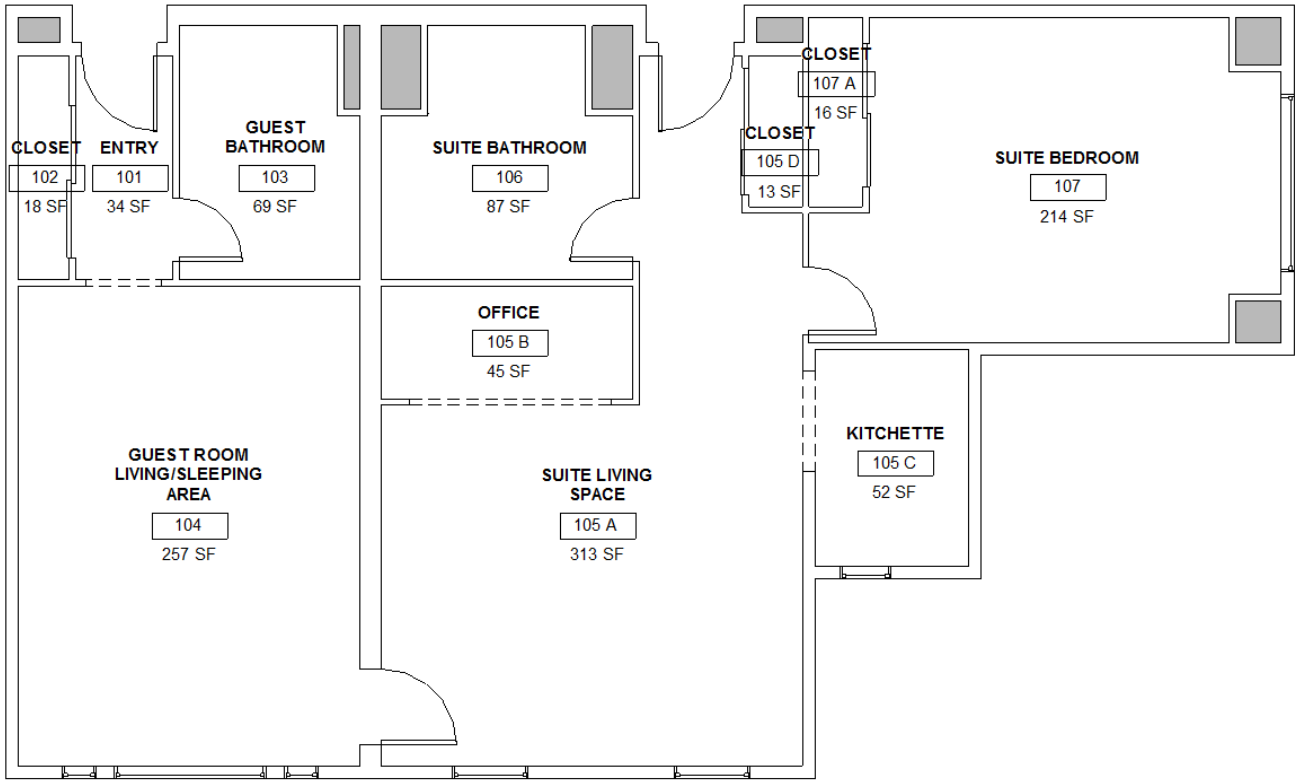

Fig. 2: Area Plan

Phase Two: Design Development

The following section contains the process for material selection for both the sustainable design and the conventional design. In order to retain a high level of validity, the materials, furniture, and permanent and portable light fixtures for both designs were selected from hospitality manufacturers that offer luxury, high quality products to the trade.

The current design trend towards clean lines and organic movement is what motivated the design concept for both the sustainable and conventional luxury suite and attached guest room. The established design concept was "Contemporary Modern". By establishing this design concept, current products that fit in with the designs were more readily available than if the concept had been more forward thinking or included more historical influences.

The materials, furniture, and permanent and portable light fixtures selected were divided into categories and kept consistent for both designs. These categories relate to the control numbers that were used for the keyed furniture plan and keyed reflected ceiling and lighting plan, were designated to each item during the organization of the specifications in Phase Three, and aid in the division of cost analysis in Phase Four.

Categories

- Accessories
    - Bedding
    - Shower Curtain
- Carpet
- Furniture
    - King Sized Headboard
    - King Sized Bed Frame
    - Nightstand
    - Dresser
    - Lounge Chair
    - Sofa
    - Desk
    - Desk Chair
    - Console
    - End Table
    - Coffee Table
- Lighting
    - Suspended Fixture
    - Flushmount Fixture
        - 16” diameter
        - 12” diameter
    - Table Lamp Fixture
    - Bathroom Sconce
- Stone
    - Floor Tile
    - Bathroom Backsplash Tile
    - Kitchenette Backsplash Tile
    - Bathroom Countertop
    - Kitchenette Countertop

- Wallcovering
    - Primary Wallcovering
    - Accent Wallcovering

Finishes for the sustainable luxury suite with attached guest room were selected based on aesthetics and sustainability considerations such as:

- LEED recognition
- Forest Stewardship Council Certified Wood (FSC)
- Low/no VOC emissions
- No-Formaldehyde
- Water based inks and dyes
- Biodegradability
- Compact fluorescent energy efficient lighting
- Established recycling program within the company's corporate offices
- Recycled materials used in manufacturing and/or shipping
- Carbon-negative manufacturing

Fig. 3: Rendered Furniture Plan

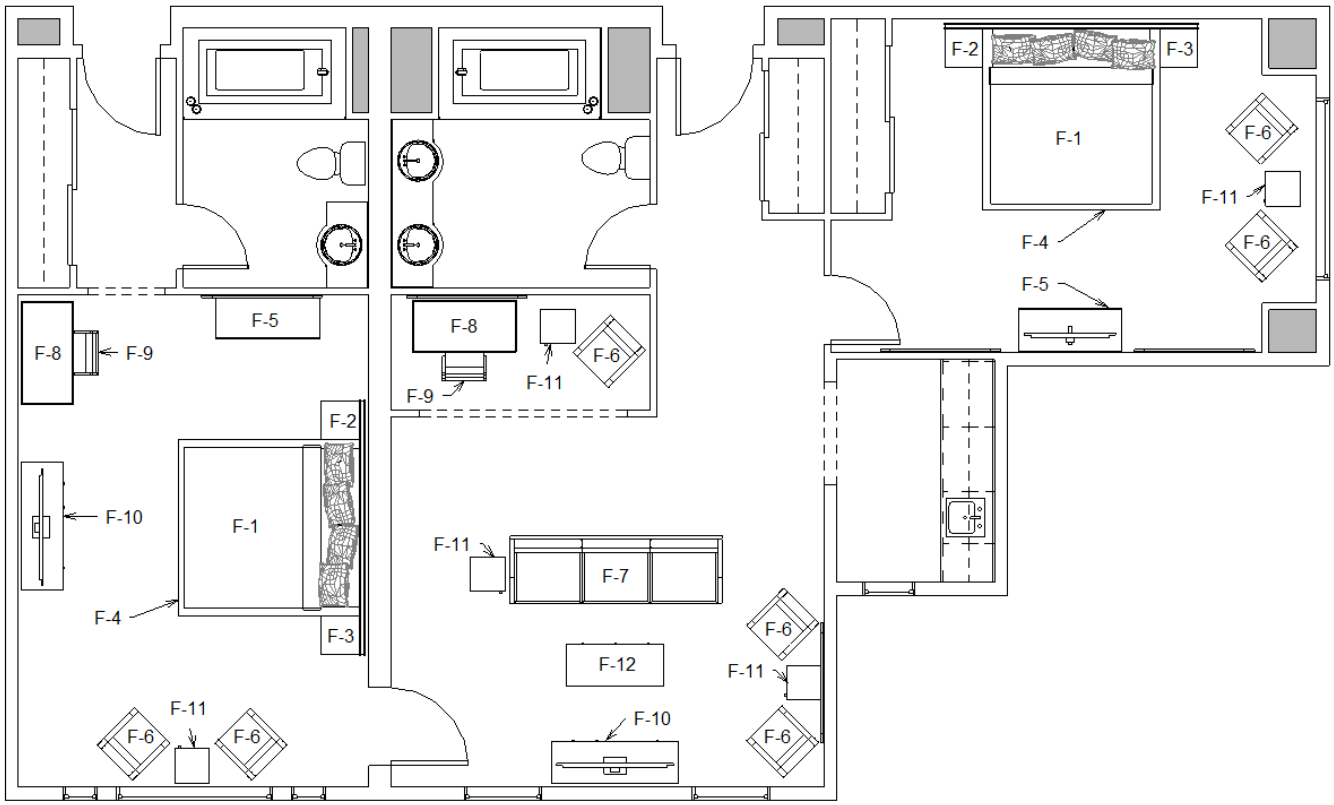

Fig. 4: Keyed Furniture Plan

Table 2
Coded Furniture Plan Legend

Control #	Description	Quantity
F-1	King Headboard	2
F-2	Left Nightstand Panel	2
F-3	Right Nightstand Panel	2
F-4	Platform Bed	2
F-5	Low Dresser	2
F-6	Lounge Chair	7
F-7	Sofa	1
F-8	Desk	2
F-9	Desk Chair	2
F-10	Low Console	2
F-11	End Table	5
F-12	Coffee Table	1

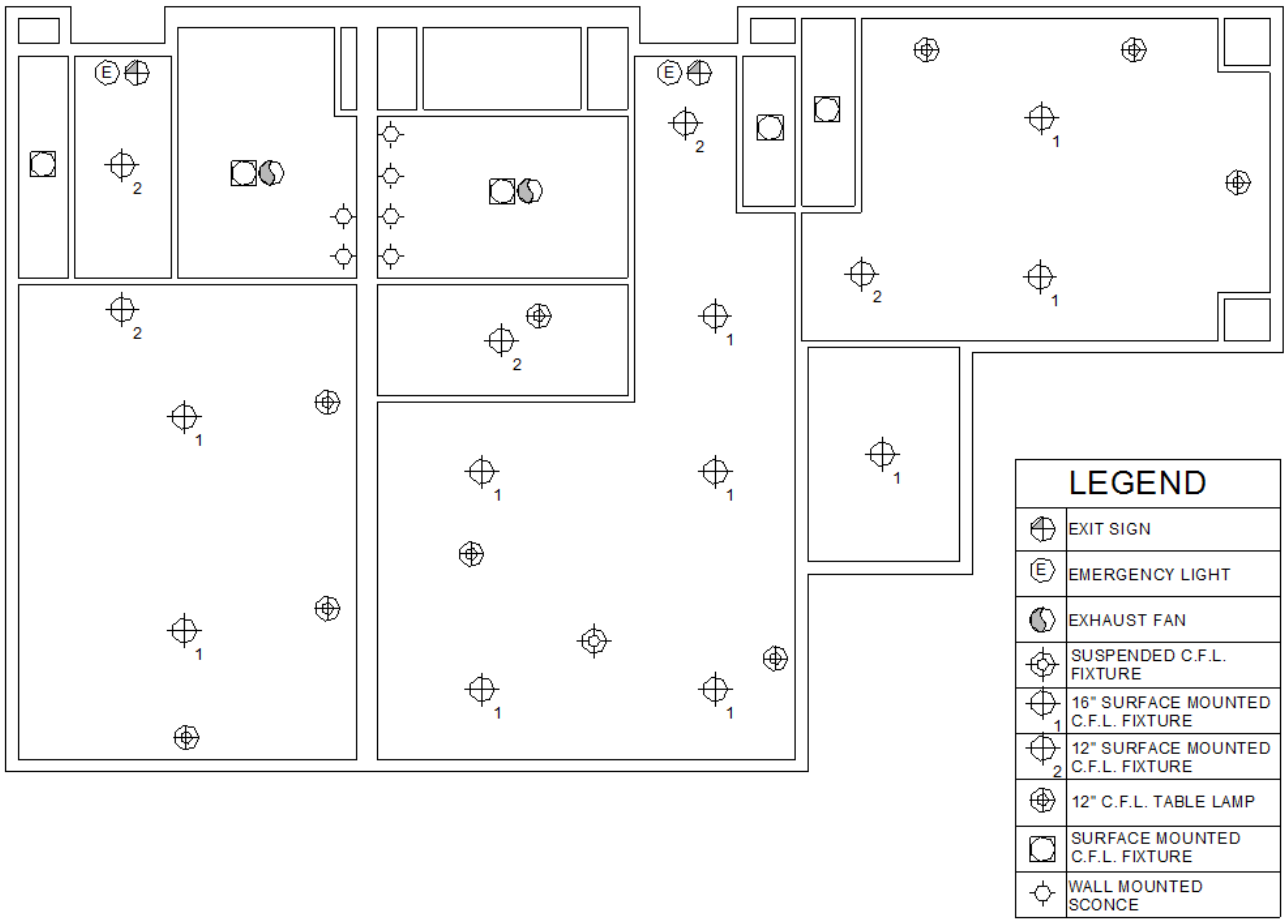

Fig. 5: Reflected Ceiling and Lighting Plan and Legend

Fig. 6: Perspective of Suite Bedroom

Fig. 7: Perspective of Suite Living Space

Conventional Design of Luxury Suite with Attached Guest Room

Fig. 8: Rendered Furniture Plan

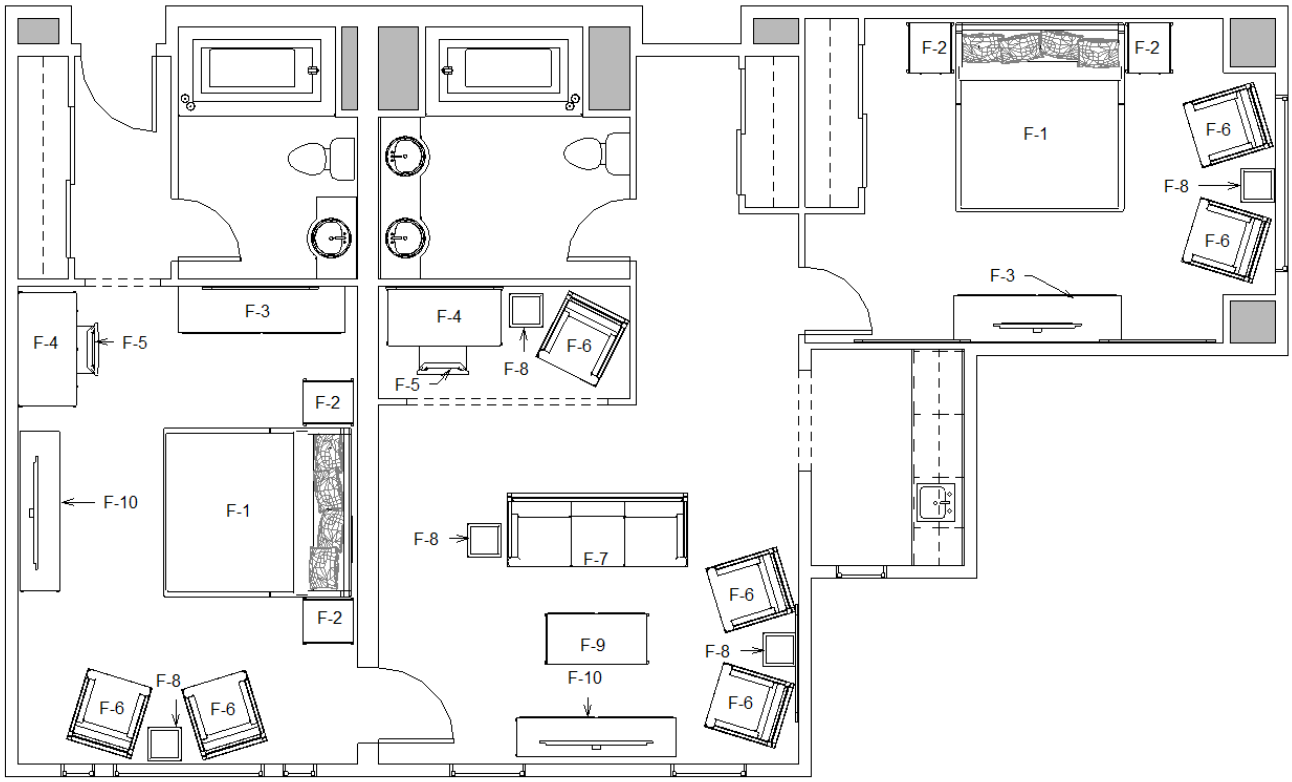

Fig. 9: Keyed Furniture Plan

Table 3
Coded Furniture Plan Legend

Control #	Description	Quantity
F-1	King Sized Bed	2
F-2	Bedside Table	4
F-3	6 Drawer Dresser	2
F-4	Desk	2
F-5	Desk Chair	2
F-6	Lounge Chair	7
F-7	Sofa	1
F-8	Side Table	5
F-9	Coffee Table	1
F-10	Console	2

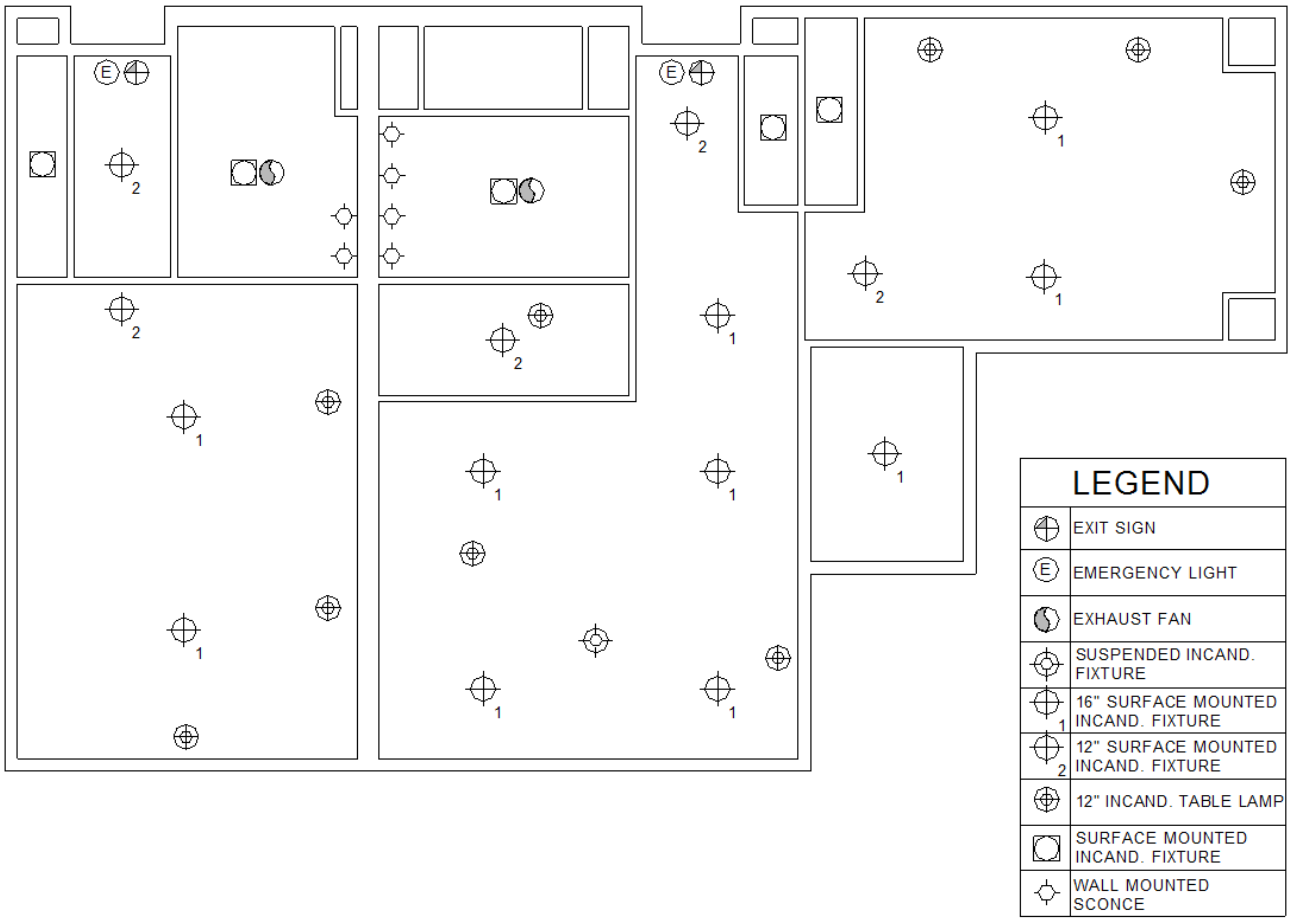

Fig. 10: Reflected Ceiling and Lighting Plan and Legend

Fig. 11: Perspective of Suite Bedroom

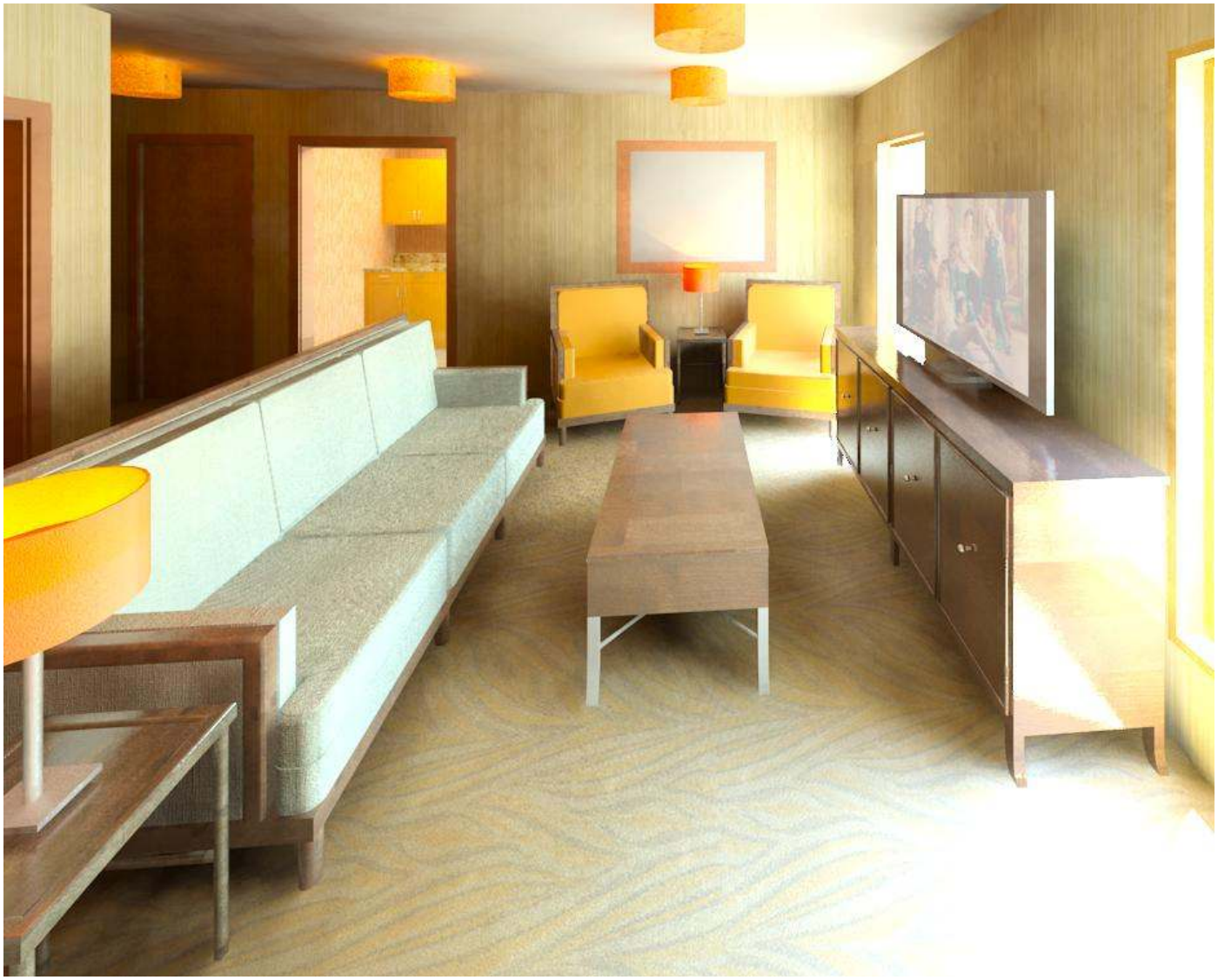

Fig. 12: Perspective of Suite Living Space

Elevations of the sustainable and the convention suite bedrooms, suite living spaces, and guest room living/sleeping spaces are located in the Appendix (Appendix 55-63).

Phase Three: Specifications

The retail cost of the furniture and finishes were calculated after all finishes for both rooms were selected in order to ensure validity that the materials, furniture, and permanent and portable light fixtures were selected based on aesthetics, with no consideration to cost. Had the price of the products been known prior to selection, the cost analysis results could be considered biased and the project would have lacked authenticity.

The corporate offices for each product were contacted to get contact information for the company's sales representative in the South Central Texas district. Each sales representative contacted was able to provide a quote or estimate for their company's products, estimating the prices for a minimum quantity order. This was the case for all products with the exception of Hampstead Lighting, the company used to specify all permanent and portable light fixtures in the sustainable and the conventional design. A complete price list of all current products was obtained from the Hampstead Lighting sales representative. Labor, freight, and taxes were not applied to the quotes or estimates of any products.

The quotes and estimates from these sales representatives were then organized along with proprietary product information into a proprietary set of specifications for the sustainable design and the conventional design. The full set of specifications for each design can be found in the Appendix.

Phase Four: Cost Analysis

During this final stage of the project, the total cost of both designs was calculated based on the quotes and estimates obtained in Phase Three. The costs were broken down into the categories and subdivided by the control numbers listed in Phase Two, and then totaled to analyze a complete comparison of total cost for each design. These comparisons can be seen in the following tables.

Table 4
Cost of Accessories for Sustainable Suite

Control #	Item Description	Quantity	Extended Cost
A-1	Amalia Solid Bedding Set **	2 sets	$399.96
A-2	Hookless Spa Shower Curtain	2 curtains	$198.00
		Accessories Total:	$597.96

** Cost of Bedding Set includes duvet, pillowcases, and sheets

Table 5
Cost of Accessories for Conventional Suite

Control #	Item Description	Quantity	Extended Cost
A-1	Duvet	2 duvets	$296.00
A-2	King Pillowcases	2 sets of cases	$68.00
A-3	King Sheets	2 sets of sheets	$272.00
		Accessories Total:	$636.00

Table 6
Cost of Carpet for Sustainable Suite

Control #	Item Description	Quantity	Extended Cost
C-1	Milliken Carpet	101 square yards	$2,761.34
		Carpet Total:	$2,761.34

Table 7
Cost of Carpet for Conventional Suite

Control #	Item Description	Quantity	Extended Cost
C-1	Broadloom Carpet	101 square years	$3,019.00
		Carpet Total:	$3,019.00

Table 8
Cost of Furniture for Sustainable Suite

Control #	Description	Quantity	Extended Cost
F-1	King Headboard	2 headboards	$5,550.00
F-2	Left Nightstand Panel	2 left nightstands	$2,800.00
F-3	Right Nightstand Panel	2 right nightstands	$2,800.00
F-4	Platform Bed	2 bed frames	$5,430.00
F-5	Low Dresser	2 dressers	$6,900.00
F-6	Lounge Chair	7 chairs	$5,138.00
F-7	Sofa	1 sofa	$1,750.00
F-8	Desk	2 desks	$2,170.00
F-9	Desk Chair	2 chairs	$1,348.00
F-10	Low Console	2 consoles	$6,750.00
F-11	End Table	5 end tables	$5,950.00
F-12	Coffee Table	1 coffee table	$1,520.00
		Furniture Total:	$48,106.00

Table 9
Cost of Furniture for Conventional Suite

Control #	Description	Quantity	Extended Cost
F-1	King Sized Bed**	2 beds	$14,590.00
F-2	Bedside Table	4 nightstands	$11,200.00
F-3	6-Drawer Dresser	2 dressers	$12,600.00
F-4	Desk	2 desks	$8,800.00
F-5	Desk Chair	2 chairs	$4,700.00
F-6	Lounge Chair	7 chairs	$34,650.00
F-7	Sofa	1 sofa	$8,990.00
F-8	Side Table	5 end tables	$11,475.00
F-9	Coffee Table	1 coffee table	$4,180.00
F-10	Console	2 consoles	$8,195.00
		Furniture Total:	$119,380.00

**** Cost of King Sized Bed includes bed frame and headboard**

Table 10
Cost of Lighting for Sustainable Suite

Control #	Item Description	Quantity	Extended Cost
L-1	16" Suspension Fixture	1 fixture	$590.00
L-2	16" Flushmount Fixture	10 fixtures	$5,900.00
L-3	12" Flushmount Fixture	5 fixtures	$2,950.00
L-4	Table Lamp	8 fixtures	$4,240.00
L-5	14” Ceiling Fixture	5 fixtures	$2,050.00
L-6	Sconce Bathroom Fixture	6 fixtures	$5,400.00
		Lighting Total:	$21,130.00

Table 11
Cost of Lighting for Conventional Suite

Control #	Item Description	Quantity	Extended Cost
L-1	16" Suspension Fixture	1 fixture	$430.00
L-2	16" Flushmount Fixture	10 fixtures	$4,300.00
L-3	12" Flushmount Fixture	5 fixtures	$1,950.00
L-4	Table Lamp	8 fixtures	$4,800.00
L-5	14” Ceiling Fixture	5 fixtures	$950.00
L-6	Sconce Bathroom Fixture	6 fixtures	$4,620.00
		Lighting Total:	$17,050.00

Table 12
Cost of Stone for Sustainable Suite

Control #	Item Description	Quantity	Extended Cost
S-1	Floor Tile	111 square feet	$378.00
S-2	Bathroom Backsplash Tile	9.75 linear feet	$365.40
S-3	Kitchenette Backsplash Tile	8.5 linear feet	$306.00
S-4	Bathroom Countertop	9.75 linear feet	$780.00
S-5	Kitchenette Countertop	8.5 linear feet	$684.00
		Stone Total:	$2,513.40

Table 13
Cost of Stone for Conventional Suite

Control #	Item Description	Quantity	Extended Cost
S-1	Floor Tile	111 square feet	$809.20
S-2	Bathroom Backsplash Tile	9.75 linear feet	$228.40
S-3	Kitchenette Backsplash Tile	8.5 linear feet	$126.00
S-4	Synthetic Countertop	18.25 linear feet	$1,281.00
		Stone Total:	$2,444.20

Table 14
Cost of Wallcovering for Sustainable Suite

Control #	Item Description	Quantity	Extended Cost
WC-1	Primary Wallcovering	78 linear yards	$1,554.00
WC-2	Accent Wallcovering	5 linear yards	$90.28
		Stone Total:	$1,644.28

Table 15
Cost of Wallcovering for Conventional Suite

Control #	Item Description	Quantity	Extended Cost
WC-1	Primary Wallcovering	78 linear yards	$1,244.10
WC-2	Accent Wallcovering	5 linear yards	$79.75
		Stone Total:	$1,323.85

Table 16
Cost Comparison and Total Cost

Category	Extended Cost for Sustainable Design	Extended Cost for Conventional Design
Accessories	$597.96	$636.00
Carpet	$2,761.34	$3,019.00
Furniture	$48,106.00	$119,380.00
Lighting	$21,130.00	$17,050.00
Stone	$2,513.40	$2,444.20
Wallcovering	$1,644.28	$1,323.85
Total:	$76,752.98	$143,853.05

CHAPTER V

CONCLUSION

This chapter discusses the design process and examines in greater detail the cost comparison between the sustainable design of a luxury hotel suite and attached guest room and the conventional design of the same luxury hotel suite and attached guest room. This project aimed to provide evidence of the stated hypothesis: sustainable products and materials can be applied to the interior design of a luxury hotel suite and attached guest room, without identifying more than a 15% increase in cost.

The first objective of the project was to develop two comparable designs by maintaining a level of luxury through the selection of high quality, hospitality interior products and developing two designs according to the "Contemporary Modern" design concept noted in Phase Two. The second objective was to develop a cost comparison between the two designs by using the information obtained from sales representative for the products selected during Phase Two. The final objective was to determine if the proposed designs gave evidence as to whether the stated hypothesis was accurate. The following discussion explains the cost comparison between the sustainable design and the conventional design, and whether the hypothesis was accurate.

Tables 4 and 5 showed the extended cost for the accessories selected for the sustainable design and the conventional design. The total extended cost for the sustainable design accessories was $597.96, while the total extended cost for the conventional design accessories

was $636.00. The sustainable design accessories cost a total of $38.04, or 6%, less than the conventional design accessories.

The difference in price of carpeting was also under 10%. Illustrated in Tables 6 and 7 was the total extended cost for carpeting. Carpet for the sustainable design was $2,761.34 compared to $3,019.00 for the conventional design. The sustainable design cost $257.66, or 8.5%, less than the conventional design.

The major difference in total cost was due to the specification of furniture. Shown in Tables 8 and 9, the sustainable design cost a total of $48,106.00, and the conventional design cost a total of $119,380.00. The sustainable design cost $71,274.00, or 60% less than the conventional design.

The total extended cost of permanent and portable light fixtures specified for the sustainable and conventional designs was shown in Tables 10 and 11. It should be discussed that the cost of compact fluorescent lamps (light bulbs) for the sustainable fixtures are much more expensive than the incandescent lamps used for the conventional fixtures. The total cost of permanent and portable light fixtures only included the fixture itself, and the costs of lamps were not factored into this project. The total cost of permanent and portable light fixtures was $21,130.00 for the sustainable design, and $17,050.00 for the conventional design. The conventional permanent and portable light fixtures cost $4,080.00, or 19%, less than the sustainable fixtures.

The closest correlation in cost was evident in Tables 12 and 13 which illustrated the cost of stone specified for the sustainable and conventional design. The sustainable design stone cost a total of $2,513.40 compared to $2,444.20 total for the conventional design stone. The conventional design stone cost $69.20, or 3%, less than the sustainable design.

Total extended cost for wallcoverings specified for the sustainable and conventional design were shown in Tables 14 and 15. The total extended cost of wallcoverings for the sustainable design was $1,644.28, and the total extended cost of wallcoverings for the conventional design was $1,323.85. That shows a difference of $320.43, or 19% decrease in cost for the conventional design.

The total cost for all categories for the sustainable and conventional design was shown in Table 16. The total cost for the sustainable design was $76,752.98 and was $67,100.07, or 47% less than the $143,853.05 total cost for the conventional design. According to these results, the stated hypothesis was accurate; results show the possibility for a luxury hotel suite and attached guest room to be designed with sustainable interior materials, furniture, and permanent and portable light fixtures without identifying more than a 15% increase in cost.

If the furniture category were to be omitted from the total cost, the results could show a closer correlation between the total cost for the sustainable design and the conventional design. Without the furniture included into the final total, the conventional design would cost $4,173.93, or 14.57% less than the sustainable design. This percentage could be considered a more accurate representation to the relationship between the total cost of a sustainable design and a conventional design for a luxury hotel suite and attached guest room. These results still exemplify that a luxury hotel suite and attached guest bedroom can be designed specifying sustainable materials, furniture, and permanent and portable light fixtures, without identifying more than a 15% increase in cost.

Most companies researched during Phase Two implemented sustainability considerations in the design, construction, or shipping of their products. It was difficult to identify companies and manufacturers that did not note any environmental attributes to their products or their

manufacturing process. This limited the number of resources available for selection of conventional materials.

For future studies, an alternate method of selecting materials could be developed and used to determine which materials would be specified. Studies with similar methodologies would help to affirm the cost effectiveness of sustainable design for the hospitality industry that was revealed in this study.

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APPENDIX

Sustainable Specification Set
Appendix 1

Interior Specification
Project Name: Sustainable Guest Suite
Issue Date: November 29, 2010

Control #:	**A-1**
Item Description:	**Amalia Solid Bedding**
Locations Used:	**Guest Suite Bedroom. Guest Bedroom**
Manufacturer:	**Valley Forge**
Website:	**www.valleyforge.com**
Contact #:	**954-968-1775**

Item Details and Finish Selections

Catalog #:	A546-10KSET
Finish:	White
Dimensions	
Height:	94"
Width:	102"
Depth:	N/A
Coverage:	N/A
Weight:	N/A
Composition:	Tencel+Plus Lyocell
Key Attributes:	King duvet cover, 1 flat sheet, 1 fitted sheet, 2 pillow cases
	Constructed not to pill

Finish (see above)

Sustainability Considerations

- Made from FSC Certified Eucalyptus, a rapidly renewable resource
- Biodegradable
- Manufacturing uses 100 times less water than cotton
- Established reclamation program
- LEED recognized

Quantity:	**Units:**	**Net Unit Cost:**	**Extended Cost:**
2	**sets**	**$199.98**	**$399.96**

Specified by: Anne Marie Speck

Appendix 2

Interior Specification
Project Name: Sustainable Guest Suite
Issue Date: November 29, 2010

Control #:	**A-2**
Item Description:	**Hookless Spa Shower Curtain**
Locations Used:	**Guest Suite Bathroom and Guest Room Bedroom**
Manufacturer:	**Valley Forge**
Website:	**www.valleyforge.com**
Contact #:	**954-968-1775**

Item Details and Finish Selections

Catalog #:	HS883410CW2
Finish:	Cream
Dimensions	
Height:	71”
Width:	77”
Depth:	N/A
Coverage:	N/A
Weight:	N/A
Composition:	100% Polyester
Key Attributes:	Water Repellent

Finish (see above)

Sustainability Considerations

- Established reclamation program
- LEED recognized

Quantity:	**Units:**	**Net Unit Cost:**	**Extended Cost:**
2	**items**	**$99.00**	**$198.00**

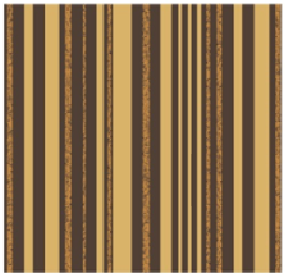
Specified by: Anne Marie Speck

Appendix 3

Interior Specification
Project Name: Sustainable Guest Suite
Issue Date: November 29, 2010

Control #:	**C-1**
Item Description:	**Stripes Milliken Carpet**
Locations Used:	**Guest Suite Bedroom**
Manufacturer:	**Milliken Hospitality**
Website:	**www.millikencarpet.com**
Contact #:	**800-528-8453**

Item Details and Finish Selections


Finish (above)

Catalog #:	E076HX6DSE
Finish:	Custom- MAXD22, MAXB20, MAXF06
Dimensions	
Height:	10.7 mm high stitch
Width:	40 ½"
Depth:	N/A
Coverage:	910 Sq. Ft.
Weight:	36 oz./Sq.Yard
Composition:	Tufted, Patterned Textured Loop
Key Attributes:	40 ½" x 40 ½" design repeat
	WearOn Continuous Filament Nylon Carpet Fiber
	MilliGuard Stain and Soil Protectant
	AlphaSan Mold/Mildew Odor Control

Sustainability Considerations

- MilliCare Environmental Services maintenance
- Company incorporates a environmental embitterment program called Eco360
- CRI Green Label Plus, NSF 140 (Sustainable Carpet Assessment Standard), SMaRT (Consensus Sustainable Product Standard Platinum) third party verifications
- Carbon negative manufacturing

Quantity:	**Units:**	**Net Unit Cost:**	**Extended Cost:**
101	**square yards**	**$27.34 sq. yd.**	**$2761.34**

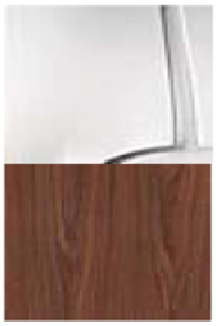
Specified by: Anne Marie Speck

Appendix 4

Interior Specification
Project Name: Sustainable Guest Suite
Issue Date: November 29, 2010

Control #:	**F-1**
Item Description:	**King Headboard – Wall Cleated**
Locations Used:	**Guest Suite Bedroom**
Manufacturer:	**Iconic Room**
Website:	**www.iconicroom.com**
Contact #:	**650-393-2400**

Item Details and Finish Selections


Finish (above)

Catalog #:	N/A
Finish:	Matte White with Walnut Wall Spacer
Dimensions	
Height:	60”
Width:	82"
Depth:	2.75"
Coverage:	N/A
Weight:	N/A
Composition:	Formed laminate over carved wood core
Key Attributes:	Easily cleaned
	Can withstand repeated and prolonged use in public locations

Sustainability Considerations

- Core is to be specified as no-formaldehyde, FSC-Certified MDF

Quantity:	**Units:**	**Net Unit Cost:**	**Extended Cost:**
2	**items**	**$2775.00**	**$5550.00**

Specified by: Anne Marie Speck

Appendix 5

Interior Specification
Project Name: Sustainable Guest Suite
Issue Date: November 29, 2010

Control #:	**F-3**
Item Description:	**Right Nightstand Panel – Wall Cleated**
Locations Used:	**Guest Suite Bedroom**
Manufacturer:	**Iconic Room**
Website:	**www.iconicroom.com**
Contact #:	**650-393-2400**

Item Details and Finish Selections


Finish (above)

Catalog #:	N/A
Finish:	Matte White with Walnut Wall Spacer
Dimensions	
Height:	60”
Width:	18"
Depth:	2.75"
Coverage:	N/A
Weight:	N/A
Composition:	Formed laminate over carved wood core
Key Attributes:	Easily cleaned
	Can withstand repeated and prolonged use in public locations

Sustainability Considerations

- Core is to be specified as no-formaldehyde, FSC-Certified MDF

Quantity:	**Units:**	**Net Unit Cost:**	**Extended Cost:**
2	**items**	**$1400.00**	**$2800.00**

Specified by: Anne Marie Speck

Appendix 6

Interior Specification
Project Name: Sustainable Guest Suite
Issue Date: November 29, 2010

Control #:	**F-3**
Item Description:	**Right Nightstand Panel – Wall Cleated**
Locations Used:	**Guest Suite Bedroom**
Manufacturer:	**Iconic Room**
Website:	**www.iconicroom.com**
Contact #:	**650-393-2400**

Item Details and Finish Selections


Finish (above)

Catalog #:	N/A
Finish:	Matte White with Walnut Wall Spacer
Dimensions	
Height:	60”
Width:	18"
Depth:	2.75"
Coverage:	N/A
Weight:	N/A
Composition:	Formed laminate over carved wood core
Key Attributes:	Easily cleaned
	Can withstand repeated and prolonged use in public locations

Sustainability Considerations

- Core is to be specified as no-formaldehyde, FSC-Certified MDF

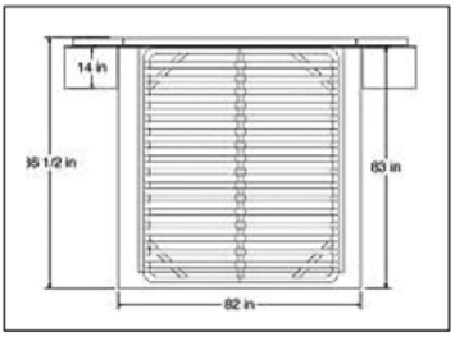
Quantity:	**Units:**	**Net Unit Cost:**	**Extended Cost:**
2	**items**	**$1400.00**	**$2800.00**

Specified by: Anne Marie Speck

Appendix 7

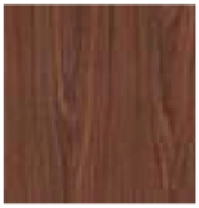
Interior Specification
Project Name: Sustainable Guest Suite
Issue Date: November 29, 2010

Control #:	**F-4**
Item Description:	**Platform Bed**
Locations Used:	**Guest Suite Bedroom**
Manufacturer:	**Iconic Room**
Website:	**www.iconicroom.com**
Contact #:	**650-393-2400**



Item Details and Finish Selections

Catalog #:	N/A
Finish:	Walnut
Dimensions	
Height:	12”
Width:	82"
Depth:	83"
Coverage:	N/A
Weight:	N/A
Composition:	Formed laminate over carved wood core
Key Attributes:	Easily cleaned
	Can withstand repeated and prolonged use in public locations


Finish (above)

Sustainability Considerations

- Core is to be specified as no-formaldehyde, FSC-Certified MDF

Quantity:	**Units:**	**Net Unit Cost:**	**Extended Cost:**
2	**items**	**$2715.00**	**$5430.00**

Specified by: Anne Marie Speck

Appendix 8

Interior Specification
Project Name: Sustainable Guest Suite
Issue Date: November 29, 2010

Control #:	**F-5**
Item Description:	**Low Dresser**
Locations Used:	**Guest Suite Bedroom**
Manufacturer:	**Iconic Room**
Website:	**www.iconicroom.com**
Contact #:	**650-393-2400**

Item Details and Finish Selections


Finish (above)

Catalog #:	N/A
Finish:	Walnut with Matte White Fronts
Dimensions	
Height:	29 5/8”
Width:	48"
Depth:	20"
Coverage:	N/A
Weight:	N/A
Composition:	Formed laminate over carved wood core
Key Attributes:	Easily cleaned
	Can withstand repeated and prolonged use in public locations

Sustainability Considerations

- Core is to be specified as no-formaldehyde, FSC-Certified MDF

Quantity:	**Units:**	**Net Unit Cost:**	**Extended Cost:**
2	**items**	**$3450.00**	**$6900.00**

Specified by: Anne Marie Speck

Appendix 9

Interior Specification
Project Name: Sustainable Guest Suite
Issue Date: November 29, 2010

Control #:	**F-6**
Item Description:	**Lounge Chair**
Locations Used:	**Guest Suite Living Room, Bedroom, and King Guest Room**
Manufacturer:	**Lily Jack**
Website:	**www.lilyjack.com**
Contact #:	**310-965-1993**

Item Details and Finish Selections

Catalog #:	T2432
Finish:	Medium Wenge Maple Wood
Dimensions	
Height:	32.5"
Seat Height:	19"
Width:	23"
Depth:	24"
Coverage:	N/A
Weight:	N/A
Composition:	Sustainable Forestry Initiative (SFI) wood and 3.5 yards uph
Key Attributes:	Exceptional durability

Finish (see above)

Sustainability Considerations

- Metal springs and mechanisms from post-consumer recycled steel materials
- Water based, bio-degradable finishes with no VOC emissions
- Bio-cell foam (plant enhanced product) made from plant based renewable oil
- Recycling program implemented in manufacturing and shipping

Quantity:	**Units:**	**Net Unit Cost:**	**Extended Cost:**
7	**items**	**$734.00**	**$5138.00**

Specified by: Anne Marie Speck

Appendix 10

Interior Specification
Project Name: Sustainable Guest Suite
Issue Date: November 29, 2010

Control #:	**F-7**
Item Description:	**Sofa**
Locations Used:	**Guest Suite Living Room**
Manufacturer:	**Lily Jack**
Website:	**www.lilyjack.com**
Contact #:	**310-965-1993**

Item Details and Finish Selections

Catalog #:	MA6842
Finish:	Medium Wenge Maple Wood
Dimensions	
Height:	36”
Seat Height:	18”
Width:	89”
Depth:	42”
Coverage:	N/A
Weight:	N/A
Composition:	Sustainable Forestry Initiative (SFI) wood and 16 yards uph
	Pillows: 5 yards
Key Attributes:	Exceptional durability

Finish (see above)

Sustainability Considerations

- Metal springs and mechanisms from post-consumer recycled steel materials
- Water based, bio-degradable finishes with no VOC emissions
- Bio-cell foam (plant enhanced product) made from plant based renewable oil
- Recycling program implemented in manufacturing and shipping

Quantity:	**Units:**	**Net Unit Cost:**	**Extended Cost:**
1	**item**	**$1750.00**	**$1750.00**

Specified by: Anne Marie Speck

Appendix 11

Interior Specification
Project Name: Sustainable Guest Suite
Issue Date: November 29, 2010

Control #:	**F-8**
Item Description:	**Desk**
Locations Used:	**Guest Suite Living Room**
Manufacturer:	**Lily Jack**
Website:	**www.lilyjack.com**
Contact #:	**310-965-1993**

Item Details and Finish Selections

Catalog #:	E4826
Finish:	Bronze Lacquer and Medium Wenge Maple Wood
Dimensions	
Height:	30”
Width:	48”
Depth:	24”
Coverage:	N/A
Weight:	N/A
Composition:	Sustainable Forestry Initiative (SFI) wood
Key Attributes:	Exceptional durability

Finish (see above)

Sustainability Considerations

- Metal springs and mechanisms from post-consumer recycled steel materials
- Water based, bio-degradable finishes with no VOC emissions
- Recycling program implemented in manufacturing and shipping

Quantity:	**Units:**	**Net Unit Cost:**	**Extended Cost:**
2	**items**	**$1085.00**	**$2170.00**

Specified by: Anne Marie Speck

Appendix 12

Interior Specification
Project Name: Sustainable Guest Suite
Issue Date: November 29, 2010

Control #:	**F-9**
Item Description:	**Desk Chair**
Locations Used:	**Guest Suite Living Room**
Manufacturer:	**Lily Jack**
Website:	**www.lilyjack.com**
Contact #:	**310-965-1993**

Item Details and Finish Selections

Catalog #:	E2223
Finish:	Medium Wenge Maple Wood
Dimensions	
Height:	40”
Seat Height:	19”
Width:	22”
Depth:	23”
Coverage:	N/A
Weight:	N/A
Composition:	Sustainable Forestry Initiative (SFI) wood and 4 yards uph
Key Attributes:	Exceptional durability

Finish (see above)

Sustainability Considerations

- Metal springs and mechanisms from post-consumer recycled steel materials
- Water based, bio-degradable finishes with no VOC emissions
- Bio-cell foam (plant enhanced product) made from plant based renewable oil
- Recycling program implemented in manufacturing and shipping

Quantity:	**Units:**	**Net Unit Cost:**	**Extended Cost:**
2	**item**	**$674.00**	**$1348.00**

Specified by: Anne Marie Speck

Interior Specification
Project Name: Sustainable Guest Suite
Issue Date: November 29, 2010

Control #:	**F-10**
Item Description:	**Cube Furniture Collection Low Console**
Locations Used:	**Guest Suite Living Room**
Manufacturer:	**David Sears Design**
Website:	**www.dsearsdesign.com**
Contact #:	**781-640-2741**

Item Details and Finish Selections

Catalog #:	N/A
Finish:	Greystone
Dimensions	
Height:	25.5”
Width:	59”
Depth:	19.5””
Coverage:	N/A
Weight:	N/A
Composition:	9-ply hardwood core FSC-certified maple plywood, eco-resin panel
Key Attributes:	Easily Easy-glide/soft-close dovetailed maple drawers
	Cut aluminum pulls


Finish (above)

Sustainability Considerations

- 40% recycled plastic beargrass panel
- Ultra low-VOC varnish
- No-VOC aniline dye
- No added formaldehyde plywood
- Forest Stewardship Council (FSC) wood
- Designed for energy and materials efficient construction that minimizes material waste

Quantity:	**Units:**	**Net Unit Cost:**	**Extended Cost:**
2	**items**	**$3375.00**	**$6750.00**

Specified by: Anne Marie Speck

Appendix 14

Interior Specification
Project Name: Sustainable Guest Suite
Issue Date: November 29, 2010

Control #:	**F-11**
Item Description:	**Cube Furniture Collection Beargrass Table**
Locations Used:	**Guest Suite Living Room**
Manufacturer:	**David Sears Design**
Website:	**www.dsearsdesign.com**
Contact #:	**781-640-2741**

Item Details and Finish Selections

Catalog #:	N/A
Finish:	Greystone
Dimensions	
Height:	21.5”
Width:	15.5”
Depth:	15.5””
Coverage:	N/A
Weight:	N/A
Composition:	9-ply hardwood core FSC-certified maple plywood, eco-resin panel
Key Attributes:	Easily Easy-glide/soft-close dovetailed maple drawers
	Cut aluminum pulls


Finish (above)

Sustainability Considerations

- 40% recycled plastic beargrass panel
- Ultra low-VOC varnish
- No-VOC aniline dye
- No added formaldehyde plywood
- Forest Stewardship Council (FSC) wood
- Designed for energy and materials efficient construction that minimizes material waste

Quantity:	**Units:**	**Net Unit Cost:**	**Extended Cost:**
5	**items**	**$1190.00**	**$5950.00**

Specified by: Anne Marie Speck

Appendix 15

Interior Specification
Project Name: Sustainable Guest Suite
Issue Date: November 29, 2010

Control #:	**F-12**
Item Description:	**Cube Furniture Collection Coffee Table**
Locations Used:	**Guest Suite Living Room**
Manufacturer:	**David Sears Design**
Website:	**www.dsearsdesign.com**
Contact #:	**781-640-2741**

Item Details and Finish Selections

Catalog #:	N/A
Finish:	Greystone
Dimensions	
Height:	16”
Width:	45.5”
Depth:	19.5”
Coverage:	N/A
Weight:	N/A
Composition:	9-ply hardwood core FSC-certified maple plywood
Key Attributes:	Easily Easy-glide/soft-close dovetailed maple drawers
	Cut aluminum pulls


Finish (above)

Sustainability Considerations

- Ultra low-VOC varnish
- No-VOC aniline dye
- No added formaldehyde plywood
- Forest Stewardship Council (FSC) wood
- Designed for energy and materials efficient construction that minimizes material waste

Quantity:	**Units:**	**Net Unit Cost:**	**Extended Cost:**
1	**item**	**$1520.00**	**$1520.00**

Specified by: Anne Marie Speck

Appendix 16

Interior Specification
Project Name: Sustainable Guest Suite
Issue Date: November 29, 2010

Control #:	**L-1**
Item Description:	**Dakota 16" Suspension**
Locations Used:	**Guest Suite Living Room**
Manufacturer:	**Hampstead Lighting**
Website:	**www.hampsteadlighting.com**
Contact #:	

Item Details and Finish Selections


Finish (above)

Catalog #:	31288
Finish:	Satin Nickel
Dimensions	
Height:	8"
Diameter:	16"
Depth:	N/A
Coverage:	N/A
Weight:	N/A
Composition:	Tufted, Patterned Textured Loop
Key Attributes:	18W 120V CFL Fluorescent

Sustainability Considerations

- Compact fluorescent energy efficiency

Quantity:	**Units:**	**Net Unit Cost:**	**Extended Cost:**
1	**fixture**	**$590.00**	**$590.00**

Specified by: Anne Marie Speck

Appendix 17

Interior Specification
Project Name: Sustainable Guest Suite
Issue Date: November 29, 2010

Control #:	**L-2**
Item Description:	**Dakota 16" Flushmount**
Locations Used:	**Guest Suite Living Room, Guest Suite Bedroom, Guest Room**
Manufacturer:	**Hampstead Lighting**
Website:	**www.hampsteadlighting.com**
Contact #:	**770-447-1700**

Item Details and Finish Selections


Finish (above)

Catalog #:	31279
Finish:	Satin Nickel
Dimensions	
Height:	8.5"
Diameter:	16"
Depth:	N/A
Coverage:	N/A
Weight:	N/A
Composition:	Parchment
Key Attributes:	26W 120V CFL Fluorescent
	cUL Certification

Sustainability Considerations

- Compact fluorescent energy efficiency

Quantity:	**Units:**	**Net Unit Cost:**	**Extended Cost:**
10	**fixtures**	**$590.00**	**$5900.00**

Specified by: Anne Marie Speck

Interior Specification
Project Name: Sustainable Guest Suite
Issue Date: November 29, 2010

Control #:	**L-3**
Item Description:	**Dakota 12" Flushmount**
Locations Used:	**Guest Suite Living Room, Guest Suite Bedroom, Guest Room**
Manufacturer:	**Hampstead Lighting**
Website:	**www.hampsteadlighting.com**
Contact #:	**770-447-1700**

Item Details and Finish Selections


Finish (above)

Catalog #:	31270
Finish:	Satin Nickel
Dimensions	
Height:	8.5"
Diameter:	12"
Depth:	N/A
Coverage:	N/A
Weight:	N/A
Composition:	Parchment
Key Attributes:	4 x 60W 120V CFL Fluorescent
	cUL Certification

Sustainability Considerations

- Compact fluorescent energy efficiency

Quantity:	**Units:**	**Net Unit Cost:**	**Extended Cost:**
5	**fixtures**	**$590.00**	**$2950.00**

Specified by: Anne Marie Speck

Appendix 19

Interior Specification
Project Name: Sustainable Guest Suite
Issue Date: November 29, 2010

Control #:	**L-4**
Item Description:	**Panier Brown Table Lamp**
Locations Used:	**Guest Suite Bedroom, Guest Suite Living Room, Guest Room**
Manufacturer:	**Hampstead Lighting**
Website:	**www.hampsteadlighting.com**
Contact #:	**770-447-1700**

Item Details and Finish Selections


Finish (above)

Catalog #:	29034
Finish:	Satin Nickel
Dimensions	
Height:	22”
Diameter:	12”
Depth:	N/A
Coverage:	N/A
Weight:	N/A
Composition:	Parchment
Key Attributes:	1 x 26W 120V CFL Fluorescent
	cUL Certification

Sustainability Considerations

- Compact fluorescent energy efficiency

Quantity:	**Units:**	**Net Unit Cost:**	**Extended Cost:**
8	**fixtures**	**$530.00**	**$4240.00**

Specified by: Anne Marie Speck

Appendix 20

Interior Specification
Project Name: Sustainable Guest Suite
Issue Date: November 29, 2010

Control #:	**L-5**
Item Description:	**Ossy Ceiling**
Locations Used:	**Guest Suite Closets, Guest Room Closets, Guest Suite Bathroom, Guest Bathroom**
Manufacturer:	**Hampstead Lighting**
Website:	**www.hampsteadlighting.com**
Contact #:	**770-447-1700**

Item Details and Finish Selections

Catalog #:	21210
Finish:	Satin Nickel
Dimensions	
Height:	3.1”
Diameter:	13.5”
Depth:	N/A
Coverage:	N/A
Weight:	N/A
Composition:	Glass and aluminum
Key Attributes:	2 x 26W DBX 120V Fluorescent
	cUL Certification

Finish (see above)

Sustainability Considerations

- Compact fluorescent energy efficiency

Quantity:	**Units:**	**Net Unit Cost:**	**Extended Cost:**
5	**fixtures**	**$410.00**	**$2050.00**

Specified by: Anne Marie Speck

Appendix 21

Interior Specification
Project Name: Sustainable Guest Suite
Issue Date: November 29, 2010

Control #:	**L-6**
Item Description:	**Luxor Sconce Bathroom Fixture**
Locations Used:	**Guest Suite Bathroom, Guest Bathroom**
Manufacturer:	**Hampstead Lighting**
Website:	**www.hampsteadlighting.com**
Contact #:	**770-447-1700**

Item Details and Finish Selections

Catalog #:	14402
Finish:	Topaz/Chrome

Finish (see above)

Dimensions (for new construction or remodel)

Height:	4”
Length:	12”
Depth:	3.25”
Coverage:	N/A
Weight:	N/A
Composition:	Blown Glass
Key Attributes:	26W G24 q-3 120V Compact Fluorescent

Sustainability Considerations

- Compact fluorescent energy efficiency

Quantity:	**Units:**	**Net Unit Cost:**	**Extended Cost:**
6	**fixtures**	**$900.00**	**$5400.00**

Specified by: Anne Marie Speck

Appendix 22

Interior Specification
Project Name: Sustainable Guest Suite
Issue Date: November 29, 2010

Control #:	**S-1**
Item Description:	**Laufen Equinox Tile**
Locations Used:	**Guest Suite Bathroom, Guest Room Bathroom**
Manufacturer:	**Roca Tile Group**
Website:	**www.rocatilegroup.com**
Contact #:	**512-834-9211**

Item Details and Finish Selections

Catalog #:	LFEQ600-18
Finish:	Sage
Dimensions	
Height:	17.5”
Width:	17.5”
Depth:	N/A
Coverage:	111 square feet
Weight:	N/A
Composition:	Through body porcelain
Key Attributes:	Break strength Min. 300
	Minimum bond strength (PSI) 165

Finish (see above)

Sustainability Considerations

- Environmental Authorization Integrated (AAI) license
- ISO 14001 certification of quality
- Recognized and qualify for LEED

Quantity:	**Units:**	**Net Unit Cost:**	**Extended Cost:**
60	**pieces**	**$6.30**	**$378.00**

Specified by: Anne Marie Speck

Appendix 23

Interior Specification
Project Name: Sustainable Guest Suite
Issue Date: November 29, 2010

Control #:	**S-2**
Item Description:	**Laufen Equinox Tile**
Locations Used:	**Guest Suite Bathroom, Guest Room Bathroom**
Manufacturer:	**Roca Tile Group**
Website:	**www.rocatilegroup.com**
Contact #:	**512-834-9211**

Item Details and Finish Selections

Catalog #:	LFEQ603-12M
Finish:	Multicolor Mosaic
Dimensions	
Height:	12”
Width:	12”
Depth:	N/A
Coverage:	9.75 linear foot
Weight:	N/A
Composition:	Glazed Porcelain
Key Attributes:	Break strength Min. 350
	Minimum bond strength (PSI) approx. 260

Finish (see above)

Sustainability Considerations

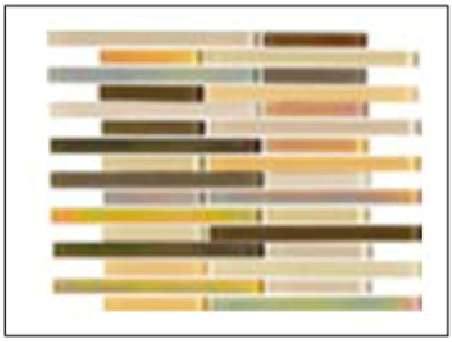
- Environmental Authorization Integrated (AAI) license
- ISO 14001 certification of quality
- Recognized and qualify for LEED

Quantity:	**Units:**	**Net Unit Cost:**	**Extended Cost:**
10	**pieces**	**$36.54 per linear foot**	**$365.40**

Specified by: Anne Marie Speck

Interior Specification
Project Name: Sustainable Guest Suite
Issue Date: November 29, 2010

Control #:	**S-3**
Item Description:	**Coral Tile**
Locations Used:	**Guest Suite Kitchenette**
Manufacturer:	**Roca Tile Group**
Website:	**www.rocatilegroup.com**
Contact #:	**512-834-9211**



Item Details and Finish Selections

Catalog #:	FMW19JN991
Finish:	Multicolor Narcea Mosaic
Dimensions	
Height:	12”
Width:	10.5”
Depth:	N/A
Coverage:	8.5 linear feet
Weight:	N/A
Composition:	True Glass
Key Attributes:	Break strength Min. 350
	Minimum bond strength (PSI) approx. 260

Finish (see above)

Sustainability Considerations

- Environmental Authorization Integrated (AAI) license
- ISO 14001 certification of quality
- Recognized and qualify for LEED

Quantity:	**Units:**	**Net Unit Cost:**	**Extended Cost:**
10	**pieces**	**$30.60 per linear foot**	**$306.00**

Specified by: Anne Marie Speck

Appendix 25

Interior Specification
Project Name: Sustainable Guest Suite
Issue Date: November 29, 2010

Control #:	**S-4**
Item Description:	**Trend Q Solid Surface**
Locations Used:	**Guest Suite Bathroom, Guest Room Bathroom**
Manufacturer:	**Trend Group**
Website:	**www.trendgroup-usa.com**
Contact #:	**786-210-7056**

Item Details and Finish Selections

Catalog #:	662*
Finish:	Multicolor Mosaic
Dimensions	
Thickness:	1/4"
Width:	N/A
Depth:	N/A
Coverage:	9.75 Linear Feet
Weight:	2.87 lbs/SQF
Composition:	Mixture of 93% quartz/granite/glass/mosaic and 7% polyester resin
Key Attributes:	Very durable
	Maintenance free
	Resistant to heat, stains, and scratches

Finish (see above)

Sustainability Considerations

- Manufactured with post-consumer recycled content
- ISO14001 Certification
- GreenGuard Certified
- USGBC Member
- LEED Credits for IEQ, Materials and Resources, Innovation in Design Process areas

Quantity:	**Units:**	**Net Unit Cost:**	**Extended Cost:**
9.75	**linear feet**	**$80.00 per linear foot**	**$780.00**

Specified by: Anne Marie Speck

Appendix 26

Interior Specification
Project Name: Sustainable Guest Suite
Issue Date: November 29, 2010

Control #:	**S-5**
Item Description:	**Trend Q Solid Surface**
Locations Used:	**Guest Suite Kitchenette**
Manufacturer:	**Trend Group**
Website:	**www.trendgroup-usa.com**
Contact #:	**786-210-7056**

Item Details and Finish Selections

Catalog #:	666***
Finish:	Multicolor Mosaic
Dimensions	
Thickness:	1/4"
Width:	N/A
Depth:	N/A
Coverage:	10 Linear Feet
Weight:	2.87 lbs/SQF
Composition:	Mixture of 93% quartz/granite/glass/mosaic and 7% polyester resin
Key Attributes:	Very durable
	Maintenance free
	Resistant to heat, stains, and scratches

Finish (see above)

Sustainability Considerations

- Manufactured with post-consumer recycled content
- ISO14001 Certification
- GreenGuard Certified
- USGBC Member
- LEED Credits for IEQ, Materials and Resources, Innovation in Design Process areas

Quantity:	**Units:**	**Net Unit Cost:**	**Extended Cost:**
8.55	**linear feet**	**$80.00 per linear foot**	**$684.00**

Specified by: Anne Marie Speck

Appendix 27

Interior Specification
Project Name: Sustainable Guest Suite
Issue Date: November 29, 2010

Control #:	**WC-1**
Item Description:	**Genon Wallcovering**
Locations Used:	**Guest Suite Bedroom, Guest Suite Living Room, Guest Room**
Manufacturer:	**MDC Wallcoverings**
Website:	**www.mdcwall.com**
Contact #:	**800-227-8053**

Item Details and Finish Selections

Catalog #:	Belladonna Texture - W2-BD-06
Finish:	Willow
Dimensions	
Height:	N/A
Width:	54"
Depth:	N/A
Coverage:	N/A
Weight:	20 oz./linear yard
Composition:	100% recycled polyester nonwoven backing
Key Attributes:	Reversible straight across match
	Moisture Vapor Transmission Rate (MVTP)
	Class "A" flame rating

Finish (see above)

Sustainability Considerations

- Printed with water based ink
- Resist mold
- Anti-microbial

Quantity:	**Units:**	**Net Unit Cost:**	**Extended Cost:**
1050	**square feet**	**$1.48 (approx. price per sq. ft.)**	**$1554.00**

Specified by: Anne Marie Speck

Appendix 28

Interior Specification
Project Name: Sustainable Guest Suite
Issue Date: November 29, 2010

Control #:	**WC-2**
Item Description:	**Genon Wallcovering**
Locations Used:	**Guest Suite Bedroom, Guest Suite Living Room**
Manufacturer:	**MDC Wallcoverings**
Website:	**www.mdcwall.com**
Contact #:	**800-227-8053**

Item Details and Finish Selections

Catalog #:	Belladonna - W2-BE-18
Finish:	Chestnut
Dimensions	
Height:	N/A
Width:	54"
Depth:	N/A
Coverage:	N/A
Weight:	20 oz./linear yard
Composition:	100% recycled polyester nonwoven backing
Key Attributes:	Reversible straight across match
	Moisture Vapor Transmission Rate (MVTP)
	Class "A" flame rating

Finish (see above)

Sustainability Considerations

- Printed with water based ink
- Resist mold
- Anti-microbial

Quantity:	**Units:**	**Net Unit Cost:**	**Extended Cost:**
61	**square feet**	**$1.48 (approx. price per sq. ft.)**	**$90.28**

Specified by: Anne Marie Speck

Conventional Specifications

Appendix 29

Interior Specification
Project Name: Conventional Guest Suite
Issue Date: November 29, 2010

Control #:	**A-1**
Item Description:	**Duvet**
Locations Used:	**Guest Suite Bedroom, Guest Bedroom**
Manufacturer:	**Unison**
Website:	**www.unisonhome.com**
Contact #:	**877-492-7960**

Item Details and Finish Selections

Catalog #:	B03012KD
Finish:	Tatami Ecru
Dimensions	
Height:	94”
Width:	106”
Depth:	N/A
Coverage:	N/A
Weight:	N/A
Composition:	100% cotton percale, 220 thread count
Key Attributes:	Structurally sound
	Snap closure duvet for easy cleaning

Finish (see above)

Quantity:	Units:	Net Unit Cost:	Extended Cost:
2	sets	$148.00	$296.00

Specified by: Anne Marie Speck

Interior Specification
Project Name: Conventional Guest Suite
Issue Date: November 29, 2010

Control #:	**A-2**
Item Description:	**King Pillowcases**
Locations Used:	**Guest Suite Bedroom, Guest Bedroom**
Manufacturer:	**Unison**
Website:	**www.unisonhome.com**
Contact #:	**877-492-7960**

Item Details and Finish Selections

Catalog #:	B03012KP
Finish:	Tatami Ecru
Dimensions	
Height:	38”
Width:	20”
Depth:	N/A
Coverage:	N/A
Weight:	N/A
Composition:	100% cotton percale, 220 thread count
Key Attributes:	Structurally sound

Finish (see above)

Quantity:	Units:	Net Unit Cost:	Extended Cost:
2	sets	$34.00	$68.00

Specified by: Anne Marie Speck

Appendix 31

Interior Specification
Project Name: Conventional Guest Suite
Issue Date: November 29, 2010

Control #:	**A-3**
Item Description:	**King Sheets**
Locations Used:	**Guest Suite Bedroom, Guest Bedroom**
Manufacturer:	**Unison**
Website:	**www.unisonhome.com**
Contact #:	**877-492-7960**

Item Details and Finish Selections

Catalog #:	B99012KS
Finish:	Solid Ecru
Dimensions	
Height:	38”
Width:	20”
Depth:	N/A
Coverage:	N/A
Weight:	N/A
Composition:	100% cotton percale, 220 thread count
Key Attributes:	Structurally sound

Finish (see above)

Quantity:	Units:	Net Unit Cost:	Extended Cost:
2	sets	$136.00	$272.00

Specified by: Anne Marie Speck

Appendix 32

Interior Specification
Project Name: Conventional Guest Suite
Issue Date: November 29, 2010

Control #:	**C-1**
Item Description:	**Broadloom Carpet**
Locations Used:	**Guest Suite Bedroom, Guest Suite Living Room, Guest Room**
Manufacturer:	**J + J/Invision**
Website:	**www. jj-invision.com**
Contact #:	**800-241-4585**

Item Details and Finish Selections

Finish (see above)

Catalog #:	Spirit 9157
Finish:	284 Vivacious
Dimensions	
Height:	N/A
Width:	28"
Depth:	N/A
Coverage:	910 Sq. Ft.
Weight:	32 oz/Sq. Yard
Composition:	100% Nylon Ultron Nylon BCF
Key Attributes:	PremierBac Plus with LOMAX Technology
	28" x 24" design repeat
	ProTex fluorochemical treatment
	Lifetime fiber performance for wear and static
	Lifetime protection from delamination failure
	Lifetime for tuft bind strength

Quantity:	**Units:**	**Net Unit Cost:**	**Extended Cost:**
101	**square yard**	**$29.90**	**$3019.90**

Specified by: Anne Marie Speck

Appendix 33

Interior Specification
Project Name: Conventional Guest Suite
Issue Date: November 29, 2010

Control #:	**F-1**
Item Description:	**King Sized Bed**
Locations Used:	**Guest Suite Bedroom, Guest Room**
Manufacturer:	**Mark David**
Website:	**www.markdavid.net**
Contact #:	**336-821-2250**

Item Details and Finish Selections


Finish (above)

Catalog #:	610TD
Finish:	Taupe
Dimensions	
Height:	48.5”
Width:	80.5"
Depth:	89.5"
Coverage:	N/A
Weight:	N/A
Composition:	Square Mesh Canning
Key Attributes:	N/A

Quantity:	**Units:**	**Net Unit Cost:**	**Extended Cost:**
2	**beds**	**$7295.00**	**$14590.00**

Specified by: Anne Marie Speck

Interior Specification
Project Name: Conventional Guest Suite
Issue Date: November 29, 2010

Control #:	**F-2**
Item Description:	**Caned Bedside Table**
Locations Used:	**Guest Suite Bedroom, Guest Room**
Manufacturer:	**Mark David**
Website:	**www.markdavid.net**
Contact #:	**336-821-2250**

Item Details and Finish Selections


Finishes (above)

Catalog #:	814
Finish:	Gunmetal finish
Dimensions	
Height:	27”
Width:	34.5”
Depth:	24.5"
Coverage:	N/A
Weight:	N/A
Composition:	Square Mesh Rattan Canning
Key Attributes:	One drawer with oval bronze drawer pull
	Open grain veneer top

Quantity:	**Units:**	**Net Unit Cost:**	**Extended Cost:**
4	**tables**	**$2800.00**	**$11200.00**

Specified by: Anne Marie Speck

Appendix 35

Interior Specification
Project Name: Conventional Guest Suite
Issue Date: November 29, 2010

Control #:	**F-3**
Item Description:	**6 Drawer Dresser**
Locations Used:	**Guest Suite Bedroom, Guest Room**
Manufacturer:	**Mark David**
Website:	**www.markdavid.net**
Contact #:	**336-821-2250**

Item Details and Finish Selections

Catalog #:	832
Finish:	Dark Tobacco
Dimensions	
Height:	34”
Width:	80"
Depth:	22"
Coverage:	N/A
Weight:	N/A
Composition:	Square Mesh Canning
Key Attributes:	N/A


Finish (above)

Quantity:	Units:	Net Unit Cost:	Extended Cost:
2	dressers	$6300.00	$12600.00

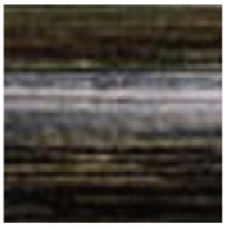
Specified by: Anne Marie Speck

Appendix 36

Interior Specification
Project Name: Conventional Guest Suite
Issue Date: November 29, 2010

Control #:	**F-4**
Item Description:	**Desk**
Locations Used:	**Guest Suite Living, Guest Room**
Manufacturer:	**Mark David**
Website:	**www.markdavid.net**
Contact #:	**336-821-2250**

Item Details and Finish Selections


Finish (above)

Catalog #:	832
Finish:	Dark Tobacco
Dimensions	
Height:	29”
Width:	54"
Depth:	28"
Coverage:	N/A
Weight:	N/A
Composition:	Square Mesh Canning
Key Attributes:	N/A

Quantity:	**Units:**	**Net Unit Cost:**	**Extended Cost:**
2	**desks**	**$4400.00**	**$8800.00**

Specified by: Anne Marie Speck

Interior Specification
Project Name: Conventional Guest Suite
Issue Date: November 29, 2010

Control #:	**F-5**
Item Description:	**Button Back Desk Chair**
Locations Used:	**Guest Suite Living, Guest Room**
Manufacturer:	**Mark David**
Website:	**www.markdavid.net**
Contact #:	**336-821-2250**

Item Details and Finish Selections


Finishes (above)

Catalog #:	830
Finish:	Dark tobacco finish with Cove upholstery
Dimensions	
Height:	38”
Width:	22.5”
Depth:	25"
Seat Depth:	19”
Seat Height:	18”
Coverage:	N/A
Weight:	N/A
Composition:	Square Mesh Rattan Canning with Basics Linen Weave Upholstery
Key Attributes:	Oval button, front only
	Upholstered seat, tight upholstered back

Quantity:	**Units:**	**Net Unit Cost:**	**Extended Cost:**
2	**chairs**	**$2350.00**	**$4700.00**

Specified by: Anne Marie Speck

Interior Specification
Project Name: Conventional Guest Suite
Issue Date: November 29, 2010

Control #:	**F-6**
Item Description:	**Lounge Chair**
Locations Used:	**Guest Suite Living, Guest Suite Bedroom, Guest Room**
Manufacturer:	**Mark David**
Website:	**www.markdavid.net**
Contact #:	**336-821-2250**

Item Details and Finish Selections


Finishes (above)

Catalog #:	A-66
Finish:	Gunmetal finish with oat upholstery
Dimensions	
Height:	33.5”
Width:	32"
Depth:	38.75"
Arm Height:	23.25”
Seat Depth:	23”
Seat Height:	17.5”
Coverage:	N/A
Weight:	N/A
Composition:	Square Mesh Rattan Canning with Boucle Upholstery
Key Attributes:	Loose seat and back cushion

Quantity:	**Units:**	**Net Unit Cost:**	**Extended Cost:**
7	**chairs**	**$4950.00**	**$34650.00**

Specified by: Anne Marie Speck

Interior Specification
Project Name: Conventional Guest Suite
Issue Date: November 29, 2010

Control #:	**F-7**
Item Description:	**Box Back Sofa**
Locations Used:	**Guest Suite Living**
Manufacturer:	**Mark David**
Website:	**www.markdavid.net**
Contact #:	**336-821-2250**

Item Details and Finish Selections


Finishes (above)

Catalog #:	C-66X
Finish:	Gunmetal finish with truffle upholstery
Dimensions	
Height:	33.5”
Width:	86"
Depth:	41.75"
Arm Height:	23.25”
Seat Depth:	24”
Seat Height:	17.5”
Coverage:	N/A
Weight:	N/A
Composition:	Square Mesh Rattan Canning with Boucle Upholstery
Key Attributes:	Loose seat and back cushion
	Optional throw pillow

Quantity:	**Units:**	**Net Unit Cost:**	**Extended Cost:**
1	**sofa**	**$8990.00**	**$8990.00**

Specified by: Anne Marie Speck

Interior Specification
Project Name: Conventional Guest Suite
Issue Date: November 29, 2010

Control #:	**F-8**
Item Description:	**Side Table**
Locations Used:	**Guest Suite Living, Guest Room**
Manufacturer:	**Mark David**
Website:	**www.markdavid.net**
Contact #:	**336-821-2250**

Item Details and Finish Selections


Finishes (above)

Catalog #:	60A & 60B
Finish:	Gunmetal finish
Dimensions	
Height:	24.5"
Width:	24"
Depth:	21"
Coverage:	N/A
Weight:	N/A
Composition:	Square Mesh Rattan Canning inset top
Key Attributes:	N/A

Quantity:	Units:	Net Unit Cost:	Extended Cost:
5	tables	$2295.00	$11475.00

Specified by: Anne Marie Speck

Appendix 41

Interior Specification
Project Name: Conventional Guest Suite
Issue Date: November 29, 2010

Control #:	**F-9**
Item Description:	**Rectangular Coffee Table**
Locations Used:	**Guest Suite Living**
Manufacturer:	**Mark David**
Website:	**www.markdavid.net**
Contact #:	**336-821-2250**

Item Details and Finish Selections


Finishes (above)

Catalog #:	837
Finish:	Dark tobacco finish
Dimensions	
Height:	18”
Width:	48"
Depth:	28"
Coverage:	N/A
Weight:	N/A
Composition:	Square Mesh Rattan Canning
Key Attributes:	Pair of drawers across front of table
	Open grain veneer top
	Oval bronze drawer pulls

Quantity:	**Units:**	**Net Unit Cost:**	**Extended Cost:**
1	**table**	**$4180.00**	**$4180.00**

Specified by: Anne Marie Speck

Interior Specification
Project Name: Conventional Guest Suite
Issue Date: November 29, 2010

Control #:	**F-10**
Item Description:	**Caned Console**
Locations Used:	**Guest Suite Living**
Manufacturer:	**Mark David**
Website:	**www.markdavid.net**
Contact #:	**336-821-2250**

Item Details and Finish Selections


Finishes (above)

Catalog #:	830
Finish:	Dark tobacco finish
Dimensions	
Height:	34”
Width:	80"
Depth:	22"
Coverage:	N/A
Weight:	N/A
Composition:	Square Mesh Rattan Canning
Key Attributes:	Four front doors
	Two adjustable shelves behind each drawer
	Open grain veneer top
	Oval bronze drawer pulls

Quantity:	**Units:**	**Net Unit Cost:**	**Extended Cost:**
1	**console**	**$8195.00**	**$8195.00**

Specified by: Anne Marie Speck

Interior Specification
Project Name: Conventional Guest Suite
Issue Date: November 29, 2010

Control #:	**L-1**
Item Description:	**Caiman 16" Suspended**
Locations Used:	**Guest Suite Bedroom, Guest Suite Living Room, Guest Room**
Manufacturer:	**Hampstead Lighting**
Website:	**www.hampsteadlighting.com**
Contact #:	**770-447-1700**

Item Details and Finish Selections


Finish (above)

Catalog #:	A19: #32558
Finish:	Satin Nickel
Dimensions	
Height:	9.5"
Diameter:	16"
Depth:	N/A
Coverage:	N/A
Weight:	N/A
Composition:	Parchment
Key Attributes:	Chrome-100W E26 Medium Base Incandescent
	cUL Certification

Quantity:	Units:	Net Unit Cost:	Extended Cost:
1	fixtures	$430.00	$430.00

Specified by: Anne Marie Speck

Interior Specification
Project Name: Conventional Guest Suite
Issue Date: November 29, 2010

Control #:	**L-2**
Item Description:	**Caiman 16" Flushmount**
Locations Used:	**Guest Suite Bedroom, Guest Suite Living Room, Guest Room**
Manufacturer:	**Hampstead Lighting**
Website:	**www.hampsteadlighting.com**
Contact #:	**770-447-1700**

Item Details and Finish Selections

Catalog #:	A19: #32552
Finish:	Satin Nickel
Dimensions	
Height:	8.5"
Diameter:	16"
Depth:	N/A
Coverage:	N/A
Weight:	N/A
Composition:	
Key Attributes:	Chrome-60W E26 Medium Base Incandescent
	cUL Certification


Finish (above)

Quantity:	Units:	Net Unit Cost:	Extended Cost:
10	**fixtures**	**$430.00**	**$4300.00**

Specified by: Anne Marie Speck

Interior Specification
Project Name: Conventional Guest Suite
Issue Date: November 29, 2010

Control #:	**L-3**
Item Description:	**Caiman 12" Flushmount**
Locations Used:	**Guest Suite Bedroom, Guest Suite Living Room, Guest Room**
Manufacturer:	**Hampstead Lighting**
Website:	**www.hampsteadlighting.com**
Contact #:	**770-447-1700**

Item Details and Finish Selections

Catalog #:	A19: #32541
Finish:	Satin Nickel
Dimensions	
Height:	8.5"
Diameter:	12"
Depth:	N/A
Coverage:	N/A
Weight:	N/A
Composition:	
Key Attributes:	Chrome-60W E26 Medium Base Incandescent
	cUL Certification


Finish (above)

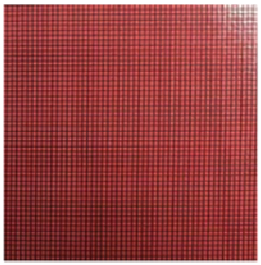
Quantity:	Units:	Net Unit Cost:	Extended Cost:
5	fixtures	$390.00	$1950.00

Specified by: Anne Marie Speck

Interior Specification
Project Name: Conventional Guest Suite
Issue Date: November 29, 2010

Control #:	**L-4**
Item Description:	**Panier Brown Table Lamp**
Locations Used:	**Guest Suite Bedroom, Guest Suite Living Room, Guest Room**
Manufacturer:	**Hampstead Lighting**
Website:	**www.hampsteadlighting.com**
Contact #:	**770-447-1700**

Item Details and Finish Selections


Finish (above)

Catalog #:	32043
Finish:	Satin Nickel
Dimensions	
Height:	22”
Diameter:	12”
Depth:	N/A
Coverage:	N/A
Weight:	N/A
Composition:	Parchment
Key Attributes:	60W E26 Medium Base Incandescent A19
	cUL Certification

Quantity:	Units:	Net Unit Cost:	Extended Cost:
8	**fixtures**	**$600.00**	**$4800.00**

Specified by: Anne Marie Speck

Interior Specification
Project Name: Conventional Guest Suite
Issue Date: November 29, 2010

Control #:	**L-5**
Item Description:	**Ossy Ceiling**
Locations Used:	**Guest Suite Closets, Guest Room Closets, Guest Suite Bathroom, Guest Bathroom**
Manufacturer:	**Hampstead Lighting**
Website:	**www.hampsteadlighting.com**
Contact #:	**770-447-1700**

Item Details and Finish Selections

Catalog #:	21096
Finish:	Satin Nickel
Dimensions	
Height:	3.1”
Diameter:	13.5”
Depth:	N/A
Coverage:	N/A
Weight:	N/A
Composition:	Glass and aluminum
Key Attributes:	2 x 60W E12
	cUL Certification

Finish (see above)

Quantity:	Units:	Net Unit Cost:	Extended Cost:
5	fixtures	$190.00	$950.00

Specified by: Anne Marie Speck

Interior Specification
Project Name: Conventional Guest Suite
Issue Date: November 29, 2010

Control #:	**L-6**
Item Description:	**Luxor Sconce Bathroom Fixture**
Locations Used:	**Guest Suite Bathroom, Guest Bathroom**
Manufacturer:	**Hampstead Lighting**
Website:	**www.hampsteadlighting.com**
Contact #:	**770-447-1700**

Item Details and Finish Selections

Catalog #:	5552
Finish:	Topaz/Chrome
Dimensions (for new construction or remodel)	
Height:	4”
Length:	12”
Depth:	3.25”
Coverage:	N/A
Weight:	N/A
Composition:	Blown Glass
Key Attributes:	75W E26 DBL Envelope Incandescent
	ADA and cUL certification

Finish (see above)

Quantity:	Units:	Net Unit Cost:	Extended Cost:
6	fixtures	$770.00	$4620.00

Specified by: Anne Marie Speck

Interior Specification
Project Name: Conventional Guest Suite
Issue Date: November 29, 2010

Control #:	**S-1**
Item Description:	**Floor Tile**
Locations Used:	**Guest Suite Bathroom, Guest Suite Kitchenette, Guest Bathroom**
Manufacturer:	**Daltile Stone**
Website:	**www.daltilestone.com**
Contact #:	**512-312-5666**

Item Details and Finish Selections

Catalog #:	L756
Finish:	Caspian Shellstone – Honed finish
Dimensions	
Height:	12”
Width:	12"
Depth:	¾”
Coverage:	111 square feet
Weight:	N/A
Composition:	Limestone
Key Attributes:	Medium Commercial Grade

Finish (see above)

Quantity:	Units:	Net Unit Cost:	Extended Cost:
119	pieces	$6.80	$809.20

Specified by: Anne Marie Speck

Interior Specification
Project Name: Conventional Guest Suite
Issue Date: November 29, 2010

Control #:	**S-2**
Item Description:	**Crackled Glass Field Tile**
Locations Used:	**Guest Suite Bathroom, Guest Bathroom**
Manufacturer:	**Medici Mosaics**
Website:	**www.medicimosaics.com**
Contact #:	**1-866-538-9518**

Item Details and Finish Selections

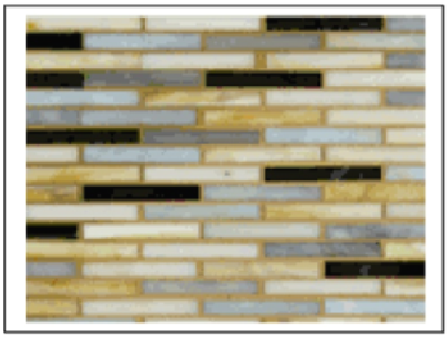
Catalog #:	GLBEL0404COC
Finish:	Cocoa
Dimensions	
Height:	4”
Width:	4”
Depth:	4mm
Coverage:	9.75 linear feet
Weight:	N/A
Composition:	Crackled Glass
Key Attributes:	Water absorption is 3-5%

Finish (see above)

Quantity:	Units:	Net Unit Cost:	Extended Cost:
60	pieces	$3.80 per piece	$228.00

Specified by: Anne Marie Speck

Interior Specification
Project Name: Conventional Guest Suite
Issue Date: November 29, 2010



Control #:	**S-3**
Item Description:	**Nova Roma Matchstick Mosaic**
Locations Used:	**Guest Suite Kitchenette**
Manufacturer:	**Medici Mosaics**
Website:	**www.medicimosaics.com**
Contact #:	**1-866-538-9518**

Item Details and Finish Selections

Catalog #:	GLNRPANMAT
Finish:	Pantheon
Dimensions	
Height:	12”
Width:	12”
Thickness:	4mm
Coverage:	8.5 linear feet
Weight:	N/A
Composition:	Glass Tiles
Key Attributes:	Low variation

Finish (see above)

Quantity:	Units:	Net Unit Cost:	Extended Cost:
9	pieces	$14.00 per square foot	$126.00

Specified by: Anne Marie Speck

Appendix 52

Interior Specification
Project Name: Sustainable Guest Suite
Issue Date: November 29, 2010

Control #:	**S-4**
Item Description:	**Synthetic Caesar Stone Countertop**
Locations Used:	**Guest Suite Bathroom, Guest Suite Kitchenette, Guest Room Bathroom**
Manufacturer:	**The Stone Resource**
Website:	**www.thestoneresource.com**
Contact #:	**336-889-7800**

Item Details and Finish Selections

Catalog #:	CS-9350
Finish:	N/A
Dimensions	
Thickness:	1/2 "
Width:	N/A
Depth:	N/A
Coverage:	18.3 linear feet
Weight:	N/A
Composition:	97% Quartz
Key Attributes:	Durable resin

Finish (see above)

Quantity:	Units:	Net Unit Cost:	Extended Cost:
18.3	linear feet	$70.00 per linear foot	$1281.00

Specified by: Anne Marie Speck

Interior Specification
Project Name: Conventional Guest Suite
Issue Date: November 29, 2010

Control #:	**WC-1**
Item Description:	**Primary Wallcovering**
Locations Used:	**Guest Suite Bedroom, Guest Suite Living Room, Guest Room**
Manufacturer:	**Arc-Com**
Website:	**www.arc-com.com**
Contact #:	**1-800-223-5466**

Item Details and Finish Selections

Finish (above)

Catalog #:	AC#51177
Finish:	Tuscan #7
Dimensions	
Height:	N/A
Width:	54”
Depth:	N/A
Coverage:	1050 square feet
Weight:	20 oz/linear yard
Composition:	Vinyl wallcovering with Polycotton Osnaburg backing
Key Attributes:	Random Match/Reverse Hang
	Free of cadmium, mercury, and ozone-depleting chemicals
	Little to no permeability
	Contains additives to resist mold

Quantity:	**Units:**	**Net Unit Cost:**	**Extended Cost:**
78	**linear yards**	**$15.95 net per yard**	**$1244.10**

Specified by: Anne Marie Speck

Interior Specification
Project Name: Conventional Guest Suite
Issue Date: November 29, 2010

Control #:	**WC-2**
Item Description:	**Accent Wallcovering**
Locations Used:	**Guest Suite Bedroom, Guest Suite Living Room, Guest Room**
Manufacturer:	**Arc-Com**
Website:	**www.arc-com.com**
Contact #:	**1-800-223-5466**

Item Details and Finish Selections

Finish (above)

Catalog #:	AC#51192
Finish:	Tangelo #22
Dimensions	
Height:	N/A
Width:	54”
Depth:	N/A
Coverage:	61 square feet
Weight:	20 oz/linear yard
Composition:	Vinyl wallcovering with Polycotton Osnaburg backing
Key Attributes:	Random Match/Reverse Hang
	Free of cadmium, mercury, and ozone-depleting chemicals
	Little to no permeability
	Contains additives to resist mold

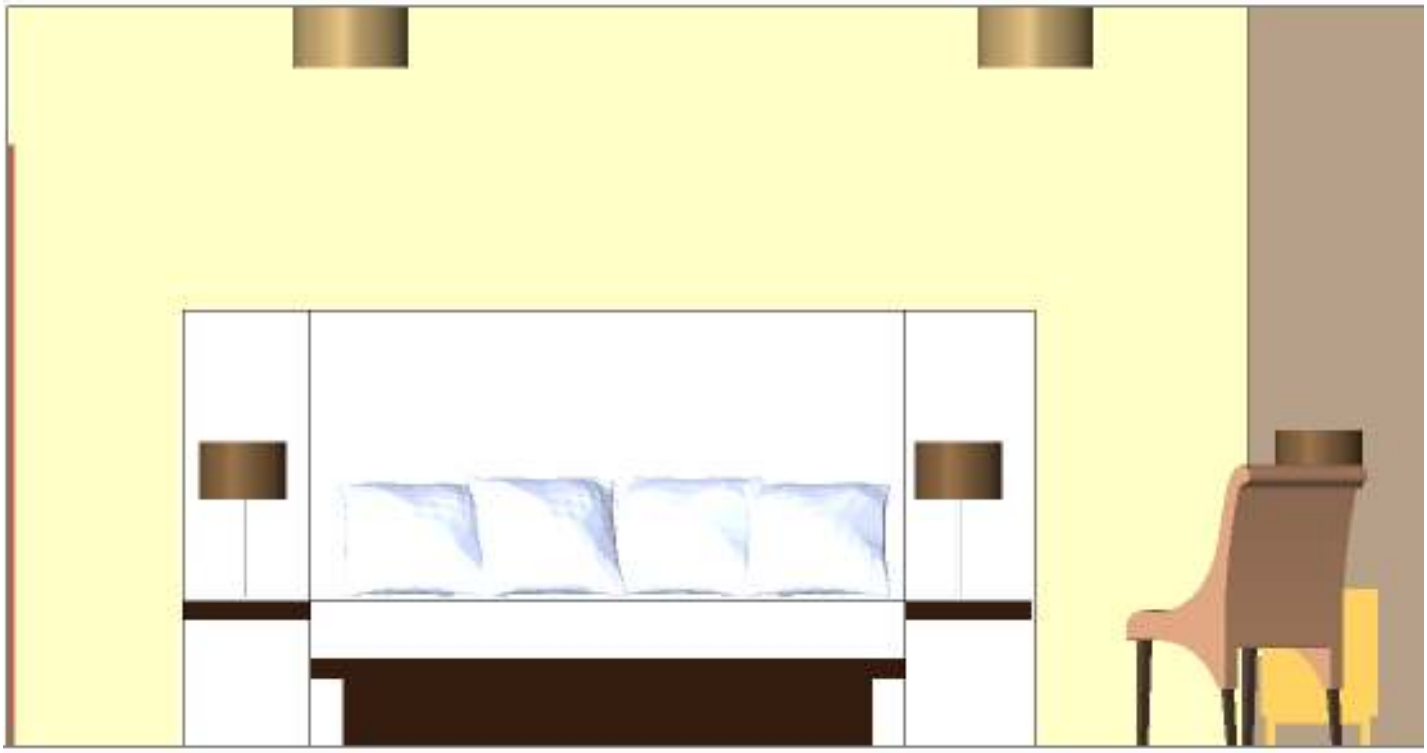
Quantity:	**Units:**	**Net Unit Cost:**	**Extended Cost:**
5	**linear yards**	**$15.95 net per yard**	**$79.75**

Specified by: Anne Marie Speck

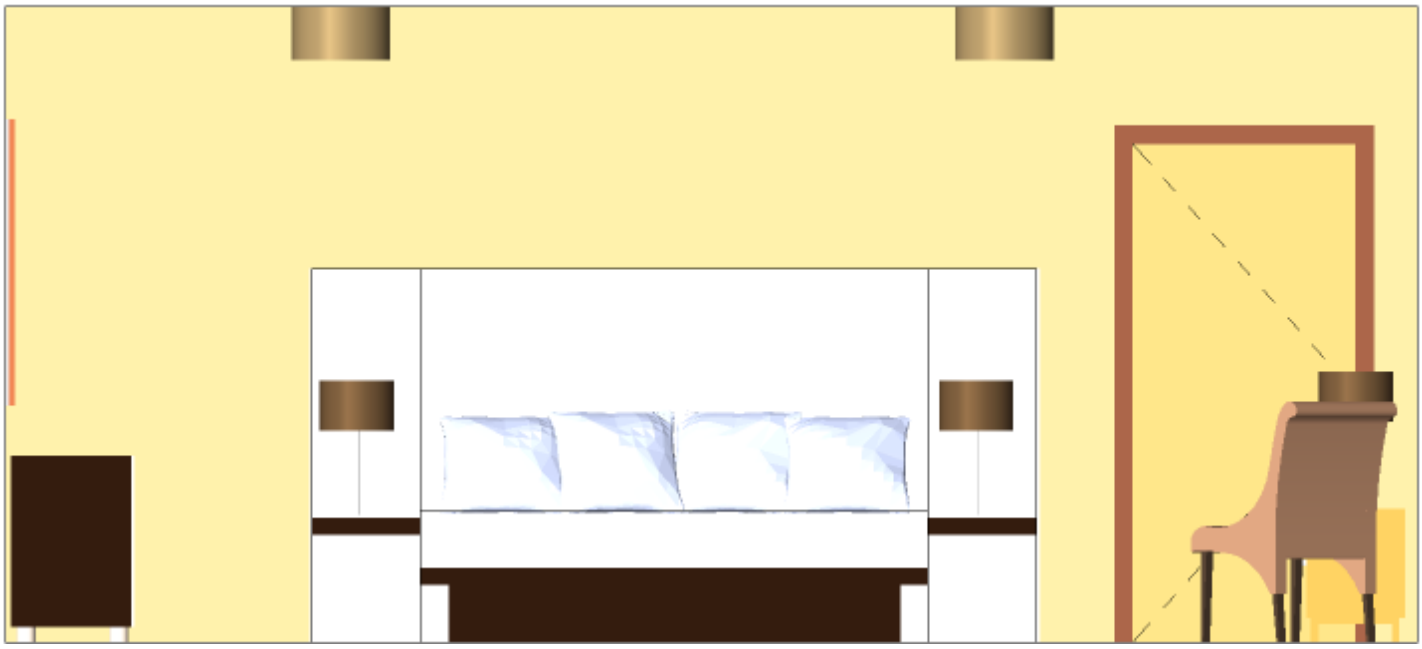
Appendix 55: Sustainable Suite Living Space Elevation (View 1)

Appendix 56: Sustainable Suite Living Space Elevation (View 2)

Appendix 57: Sustainable Suite Bedroom



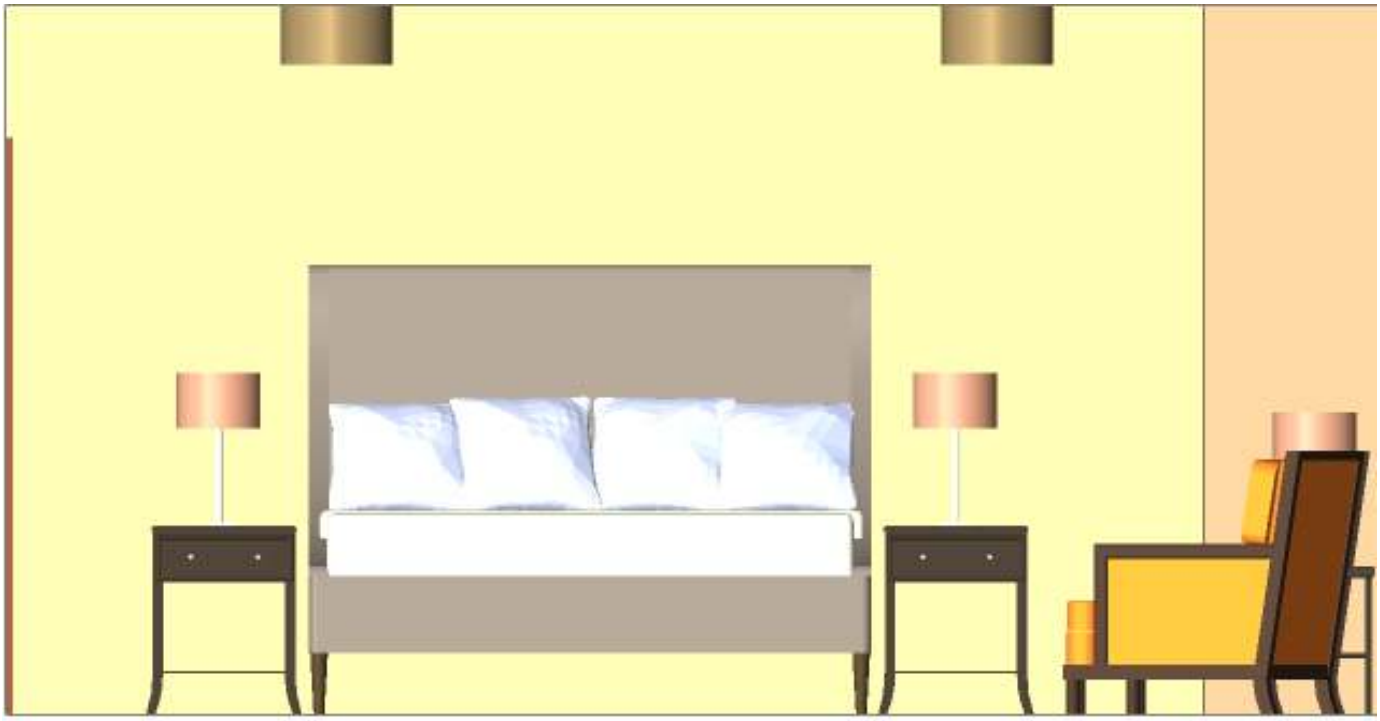
Appendix 58: Sustainable Guest Room Living/Sleeping Space



Appendix 59: Conventional Suite Living Space Elevation (View 1)

Appendix 60: Conventional Suite Living Space Elevation (View 2)

Appendix 61: Conventional Suite Bedroom



Appendix 62: Conventional Guest Room Living/Sleeping Space

VITA

ANNE MARIE SPECK

Candidate for the Degree of

Master of Science

Thesis: A COST COMPARISON OF SUSTAINABLE VERSUS CONVENTIONAL INTERIOR FINISHES FOR A LUXURY HOTEL SUITE PROTOTYPE

Major Field: Interior Design

Biographical:

Personal Data:
Graduated from Pittsburg State University, Pittsburg, Kansas with a Bachelors of Science in Interior Design in December 2008

Education:
Completed the requirements for the Master of Science in Interior Design at Oklahoma State University, Stillwater, Oklahoma in May 2011

Experience:
Research Assistant for Dr. Randall Russ at Oklahoma State University, Stillwater, Oklahoma from January 2009-December 2009
Teaching Assistant for Studio II and Design Theory at Oklahoma State University, Stillwater, Oklahoma from January 2009-May 2010
Adjunct Instructor of Interior Design at The Art Institute of Austin, Austin, Texas from July 2010-present

Professional Memberships: none

Name: Anne Marie Speck Date of Degree: May 2011

Institution: Oklahoma State University Location: Stillwater, Oklahoma

Title of Study: A COST COMPARISON OF SUSTAINABLE VERSUS CONVENTIONAL INTERIOR FINISHES FOR A LUXURY HOTEL SUITE PROTOTYPE

Pages in Study: 112 Candidate for the Degree of Master of Science

Major Field: Interior Design

Scope and Method of Study:
This project proposed to provide evidence for the research hypothesis: Sustainable products and materials can be specified for the interior design of a luxury hotel suite and attached guest room, without more than a 15%, increase in cost.

Phase One consisted of designing a set of construction documents for comparing cost of materials, furniture and the permanent and portable light fixtures for a sustainable versus a conventional luxury hotel suite in South Central Texas. The construction documents were designed based on the layout of a typical hotel suite and used as dependent variables for the study.

Phase Two consisted of selecting hospitality products; sustainable products were applied to one set of the construction documents, while conventional products were applied to a second set of the dependent variables

The initial retail costs for all materials and furniture as well as the permanent and portable light fixtures within the suites and attached guest rooms were calculated and organized into a proprietary set of specifications for both the sustainable and conventional designs in Phase Three.

The purpose of Phase Four of this study was to analyze the cost of a sustainable, luxury hotel suite compared to a conventional, luxury hotel suite.

Findings and Conclusions:
Through a comparison of the two sets specifications, the cost effectiveness of sustainable design in the hotel industry in South Central Texas was analyzed. The total cost for the conventional design was $143,853.05. The sustainable design cost $67,100.07, or 47% less than the conventional design. According to these results, the stated hypothesis was accurate.

ADVISER'S APPROVAL: _____