Tenant Design Criteria

Section lg LEED Guidelines Criteria

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ADDENDUM LOG

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INTRODUCTION

Macerich (NYSE: MAC) is a fully integrated self-managed and self-administered real estate investment trust, which focuses on the acquisition, leasing, management, development and redevelopment of regional malls throughout the United States. The company is the sole general partner and owns an 86% ownership interest in The Macerich Partnership, L.P. Macerich now owns approximately 77 million square feet of gross leasable area consisting primarily of interests in 72 regional malls.

Macerich is an industry leader in adding value to well-sited shopping centers with strong demographics and demonstrable shopper loyalty. The company's success stems from a deeply rooted commitment to embrace and reflect the changing preferences of consumers, retailers and communities on every step of the journey toward creating remarkable destinations. Looking ahead, Macerich has built one of the nation's most active and robust pipelines of new and redevelopment projects, partnering with retailers to create high-value, unusually compelling retail destinations.

With such renewed focus, Macerich is taking sustainability concerns to heart and changing how it operates. The REIT has realized that even the smallest changes, like switching to energy saving light bulbs and choosing more environmentally friendly cleaning products, can be beneficial. Macerich has plans to produce its own on-site energy through wind turbines and local fuel cells as well as future plans to install solar panels on the covering of surface parking. Additionally, through strict recycling programs, Macerich has been able to recycle up to 83 percent of the materials used in its redevelopment projects.

Macerich has decided to use sustainable building practices to target an accomplishment rare among shopping centers – LEED certification by the U.S. Green Building Council (USGBC) – in its redevelopment of Northgate in San Rafael, California. Northgate's top-to-bottom redesign preserves the center's position as the largest and only enclosed regional shopping center in Marin County, but utilizes new features that will blur the boundaries between the indoors and the outdoors, including a new, welcoming courtyard, open-air dining areas and an indoor-outdoor foot court near the Century Theatres. The center itself will have new natural lighting and a more sophisticated, simplified interior. New landscaping will reflect greater use of native Northern California plants, including a live oak tree planned for the outdoor gathering space. Macerich intends to design its shopping malls to meet the needs of current and future residents while preserving flexibility to adapt to future growth in demand, committing to green ideology that is mindful of the environment and conscious of the health of the planet.

DEFINITION OF "GREEN" AND GREEN BUILDINGS

Green building is the practice of increasing the efficiency with which buildings use energy, water and material resources while reducing building impacts on human health and the environment during the building's lifecycle, through better siting, design, construction, operation, maintenance, and removal.

Green buildings are designed to reduce the overall impact of the built environment on human health and the natural environment by:

- Efficiently using energy, water, and other resources
- Protecting occupant health and improving employee productivity
- Reducing waste, pollution and environmental degradation

Sustainable or Green Design is the art of designing physical objects, the built environment and services to comply with the principles of economic, social and ecological sustainability. It ranges from designing small objects for everyday use, through to designing buildings, cities, and the earth's physical surface. It is a growing trend within the fields of architecture, landscape architecture, urban design & planning, engineering, graphic design, industrial & interior design and also fashion design.

Sustainable design is general reaction to the global "environmental crisis", i.e., rapid growth of economic activity and human population, depletion of natural resources, damage to ecosystems and loss of biodiversity. The appearance is that our growing use of the earth has exceeded the sustainable limits of the earth importantly because of continually increasing investment in diminishing resources associated with goods and services. Green design is considered a means of doing that while maintaining quality of life by using clever design to substitute less harmful products and processes for conventional ones.

USGBC and LEED

The U.S. Green Building Council (USGBC) is a non-profit organization committed to expanding sustainable building practices. USGBC is composed of more than 15,000 organizations from across the building industry that are working to advance structures that are environmentally responsible, profitable, and healthy places to live and work. Members includes building owners and end-users, real estate developers, facility managers, architects, designers, engineers, general contractors, subcontractors, product and building system manufacturers, government agencies, and nonprofits.

In 1998, the USGBC created the Leadership in Energy and Environmental Design, or LEED, rating system to provide owners and developers with a benchmark for achieving a green building rating. LEED is a voluntary, consensus-based national rating system for developing high-performance, sustainable buildings. Developed by USGBC, LEED addresses all building types and emphasizes state-of-the-art strategies for sustainable site development, water savings, energy efficiency, materials and resources selection, and indoor environmental quality. LEED is a practical rating tool for green building design and construction that provides immediate and measurable results for building owners and occupants. Since its inception, the LEED system has continuously evolved by raising the bar for achieving LEED certification status. Additional information on the LEED Certification process and the different LEED programs is available in the appendix section of the document.

BENEFITS OF A GREEN BUILDING

Currently, North Americans spend over 90% of their time in buildings, and much of that time is spent at work. Buildings are responsible for 60% of total electricity and over 30% of total energy used annually. Buildings also account for significant portions of fresh water consumption during both construction and occupancy. Material waste during construction accounts for 12 – 53% of landfill, depending on location. A well designed, sustainable building works to reduce impact on the environment while garnering financial benefits for the Owner and Tenants. Benefits to the Tenant include the increased employee retention typically found in the comfortable, controllable environment fostered in sustainable buildings.

Green or sustainably designed buildings not only reduce consumption of energy, fresh water and materials but also provide a comfortable, healthy indoor environment for the occupants. Building Green benefits everyone from the occupants of the building to the construction workers installing equipment to the surrounding community and on out to all the earth's environment. Benefits come on different levels for everyone involved, and impacts occur in different ways. The impacts can be broken down into three major categories, economic benefits, environmental benefits and social benefits.

Economic Benefits

The quality of the workplace has impact on both direct and indirect cost to an organization. Direct costs such as utilities and waste disposal or treatment are often passed on to the tenant. Indirect costs, such as non-productivity or sick-leave are borne by the tenant. When improvement in the workplace yields increased productivity and reduced direct cost, the result is profit for the Tenant. Employee salaries are typically the largest operating expense for a business. A small increase in productivity can therefore generate huge savings. Productivity, retention and reductions in absenteeism are shown to benefit immensely from good-quality workspaces, in other words those spaces that are comfortable and safe.

A "Green" Tenant Improvement Guideline can address factors that typically interfere with comfort and efficiency in the workplace before they begin. The technical causes of the most common complaints effecting tenant comfort, health and satisfaction are:

- Poor indoor air quality, lack of fresh air
- Poor lighting
- Distractions such as Noise or Odors

Some common complaints can also be addressed by attention to psychological factors such as:

- Lack of control over switches, thermostats etc.
- Lack of contact to the outside (view, daylighting)

A workplace that addresses issues of comfort and satisfaction can attract potential employees. Employees will be less likely to be affected with physical complaints or "sick building syndrome" and related employer liability is therefore reduced.

Northgate Mall is designed to work at its optimal best, using high-efficiency mechanical systems, a high-performance enclosure system and tapping into local features for added energy savings. Reduc-

BENEFITS OF A GREEN BUILDING (Cont'd.)

ing the demand for energy in a building has economical benefits on several levels. Immediate cost savings are realized through reduced energy bills. More effectively, a high-efficiency system means less need for costly repairs or replacements, and extended life for the mechanical components. Cost savings are also realized through the design of the interior space lay-out for maximum exposure to day-light and exterior views. Landscape features which reduce the use of potable water for irrigation also contribute to the overall energy cost savings of the building.

Environmental Benefits

Many of the building decisions for Northgate Mall leave a positive environmental impact. Reuse and protection of natural resources comes from using building materials with recycled content and recycling construction and building waste. The selection of building materials from the existing structure and construction on previously developed land preserves virgin habitats for plants and wildlife. High reflective roofs, landscaping features, and retention of captured rainwater for irrigation needs reduce the amount of energy used to heat and cool the building and reduce the building's impact on the community's stormwater management systems. The selection of low VOC (volatile organic compounds) paints, adhesives, sealants, carpets and wood products will improve indoor air quality and enhance occupant comfort. These features will not only reduce impacts on the natural environment but will also enhance the quality of occupant life inside the building.

Social Benefits

A sustainable, high-performance building presents a positive, environmentally responsible image to the public, which can be a contributing factor in attracting and retaining employees as well as galvanizing public relations. Satisfied, comfortable and productive employees provide evidence of a healthy organization and therefore become an asset to public relations.

Macerich is a leader in the sustainability movement and by adapting USGBC standards for green buildings at the Northgate Mall is pursuing to become one of the first organizations to obtain LEED Certification for shopping malls. There is a positive health impact of clean air through the use of high efficiency air filters in air supply systems. Improved indoor air quality (IAQ) is assured by construction practices that consider the final environment and careful selection of finish Materials through the buildings. There is a positive "feel" of the buildings from individual thermal comfort and lighting controls, the sustained reliability of building mechanical systems, and exposure to direct daylight and outside views. A positive public image can easily be seen from landscaping features and an irrigation system that noticeably does not waste water. And finally, there is a neighborhood impact by reducing heat island effects, through selection of appropriate roofing materials at the top of the buildings, and light pollution, through consideration in design in the exterior and interior lighting.

BASE BUILDING STRATEGIES

Northgate Mall is designed and built to achieve a Gold Certification under the LEED Core & Shell program from the USGBC. Macerich believes in positive attributes of sustainable design to positively impact the shopping mall's occupants and its surrounding environment.

To meet the LEED requirements, choices were made throughout the design and construction process to ensure a high quality, high-functioning building with a healthy atmosphere. The Macerich project team addressed several credits in each of the six LEED Program categories. The following highlights what was done under each LEED credit category. Detailed list of achieved credits are provided in the appendix at the end of this section.

Sustainable Sites

The Sustainable Sites credits work together to achieve a number of objectives which include reducing the impact on surrounding ecosystems by minimizing land consumption, and protecting water quality. Benefits mainly impact the surrounding community and eco-system. Personal benefits come from the building's location in an existing infrastructure and reduction of pollutants into the surrounding environment which makes for a cleaner, healthier place to live. The location of Northgate Mall supported many credits by being in an urban location and close to public transportation. Credits were also achieved from the landscape design, use of a water retention tank to capture rainwater run-off and a roof with a white reflective coating. The exterior lighting was also designed to minimize light pollution, directing outdoor lights to have the highest impact and meaningful use.

Water Efficiency

The objectives of Water Efficiency credits are to primarily limit the use of potable water for landscaping irrigation, and reduce the generation of wastewater while increasing the local aquifer recharge. This benefits the building by reducing costs of bringing in municipal water and benefits the surrounding environment by reducing the strain on natural water sources. Northgate Mall's landscape includes plants that do not require permanent irrigation systems. The Northgate Mall's irrigation system is designed to minimize water usage through collection of rainwater in a storm water retention tank. The irrigation system is designed to not over-water landscape beds or lose moisture to evaporation in the air. Under normal rainfall conditions, all the water used for irrigation will come from the stormwater retention tank. The structure also uses water efficient faucets, toilets and urinals that reduce the potable water consumption drastically.

Energy & Atmosphere

The Energy and Atmosphere credits aim to reduce the environmental impacts associated with energy extraction techniques such as coal mining, oil drilling and natural gas drilling. They also aid in minimizing global climate change due to factors such as acid rain and smog, and work to reduce operational costs associated with energy consumptions. An increased building function from efficient mechanical systems and a reduced overall energy cost benefit all building residents. To achieve these credits, all mechanical systems were commissioned to assure proper function and coordination with building operations. The building was designed to exceed the California Title 24 Code. This is achieved mainly through an energy-efficient enclosure with insulated glass and thermally broken window frames. Additionally, to provide ongoing accountability of energy consumption over time, a Measurement & Verification (M&V) plan was developed and implemented to evaluate actual energy consumption with baseline consumption. Necessary metering equipment was installed to monitor the building energy use. A contract was also signed to provide portion of the building electricity generated through renewable energy sources.

BASE BUILDING STRATEGIES (Cont'd.)

Materials & Resources

Building materials choices are important in sustainable design because of the extensive network of extraction, processing and transportation steps required to process them. Activities to create building materials may pollute the air and water, destroy natural habitats and deplete natural resources. Construction and demolition wastes constitute about 40% of the total solid waste stream in the United States. The intention behind the Materials and Resources credits is in reducing redundant development, thereby reducing the accompanying environmental impact associated with producing and delivering new materials. Additionally, the reuse of spaces and materials reduce waste and can directly benefit the local economy. Buying products containing recycled materials limits the amount of damage done on natural habitats to produce new materials. To support these credits, more than 50% of the existing structure was reused, over 75% of the building's construction waste was recycled and over 10% of building materials used on the Northgate project contained recycled content. Examples of materials that contain recycled content include reinforcement steel, aluminum window frames, glass panes, concrete and miscellaneous steel items.

Indoor Environmental Quality

Americans spend more than 90% of their time indoors where the pollutant levels according to EPA is 2 to 5 times and sometimes 100 times more than outdoor levels. Many of these pollutants can cause health reactions and allergies resulting in absenteeism at work. The credits associated with Indoor Environmental Quality are applied to reduce negative effects caused by poor indoor air quality due to factors such as tobacco smoke, indoor sealants, adhesives, paints and carpets. It also targets factors that can negatively affect the health of building residents. A better indoor atmosphere and healthier living conditions benefit all building occupants.

Multiple steps were taken to ensure improved indoor air quality. An indoor air quality (IAQ) plan was developed and implemented to reduce indoor air quality problems resulting from the construction process and ensure the comfort and well-being of construction workers and building occupants is sustained. Care was taken during the construction process to protect all installed mechanical systems to reduce the dust and particles caught inside the duct work. High-grade filters are installed at all outdoor air intakes to continue to trap significant quantities of particulate irritants. Individual control of unit conditioning and lighting also improves personal comfort. Care was also taken to use adhesives, sealants, paints and carpets that contain reduced Volatile Organic Compounds (VOC) which are toxins released after these materials are installed. In order to control and minimize pollutant entry into the building, permanent walk-off mats were installed at all the entrances of the Mall. In order to provide a comfortable thermal environment that supports the productivity and well being of Mall occupants, the HVAC systems and building envelope were designed and constructed according to the required standards. The Mall also provides daylight and views within the regularly occupied spaces.

Innovation in Design

USGBC offers additional credits for exemplary performance for the existing standard credits or other innovative strategies that are not addressed within a LEED prerequisite or credit but warrant consideration for their sustainability benefits. Northgate Mall took several innovative steps in the design of the building by instituting several programs. A Green Pest Control program was developed that eliminates and deters pests without using toxic chemicals. A Green Cleaning program was also developed which uses environmentally friendly and non-toxic cleaning products in all common areas of the building and encourages residents to use green cleaning products in their own homes. A comprehensive signage program was built into the Mall's spaces to educate the occupants and visitors on the benefits of green buildings. A manual was also developed to inform the

BASE BUILDING STRATEGIES (Cont'd.)

design of other buildings based on the successes of this project and guided tours were conducted to focus on sustainable living, using the project as an example.

Additional Green and Sustainable Features

Beyond what LEED required for certification, Macerich made a few additional choices for sustainable design elements. These features aided in the achievement of several credits, but are also individually significant in their support of sustainable design.

- Along with high efficiency HVAC systems, Macerich installed a demand control ventilation system that brings in outside air through operable clerestory windows and roll-away "nano" walls to take advantage of Marin County's mild climate.
- All surface runoff from the 40 acres of Mall buildings and parking lots is collected and cleaned prior to emptying it into the City storm drain system.
- The majority of wood from original structure was reused in decorative stick work, benches and even concrete framing.

TENANT DESIGN RECOMMENDATIONS

A. Core Recommendations

General Design Strategies:

- Design interior components like demountable partitions, modular systems etc for future change to save time and money.
- Plan interior layouts to enhance daylight and airflow while reducing noise for comfort that supports productivity (i.e. free perimeter spaces for open areas to allow daylight to penetrate deeper into the space)
- Specify energy efficient lighting, such as fluorescent (T5 or T8 with electronic ballast) or LED task lighting that uses no more than 1 watt/sq.ft. and Energy Star appliances to save on electrical use and cost.
- Review the possibility of purchasing "Green Power" with the Owner (Macerich). Electricity can be provided from renewable resources by engaging in a renewable energy contract with a certified Green-e accredited utility program or power marketer, or through use of Green-e Tradable Renewable Certificates.
- Hire a professional designer and/or engineers, preferably with experience in sustainable office design and one that is accredited through US Green Building Council's LEED program
- Consider participation in the LEED Commercial Interiors program early in the Design or Pre-Design phase to capitalize on resources and strategies for integrated design approaches.

Tie into Base Building "Green" Features

- The "core" toilet rooms and showers in the Base Building are equipped with efficient Plumbing Fixtures. Tenants who add private pantries should consider continuing this effort by selecting low-flow faucets with automatic cut-off sensors.
- The Base Building and associated maintenance includes space and a program for managing recycled materials such as paper, corrugated cardboard, glass, plastics and metals. Tenant spaces can include spaces designated for short-term storage and sorting of recycled items. Individual workspaces can be provided with containers for small amounts of used copy paper. Tenants may elect to add equipment to the building's recycling area to crush aluminum cans or bale cardboard.
- This building is equipped with a Building Management System (BMS), designed to support systems such as Carbon Dioxide monitoring. The tenant design should consider the addition of CO2 sensors for monitoring of specific spaces which is required if they intend to pursue LEED for Commercial Interiors Certification. Macerich expects its tenants to comply with the necessary code requirements for their individual spaces. If they intend to install a CO2 monitoring system they need to follow the guidelines mentioned below. The Tenant's sensors would be located in spaces that have changing occupant loads.
  - ◊ Install a CO2 sensor within each densely occupied space (having a design occupant density greater than 25 people per 1000 sq. ft. per ASHRAE 62) such as conference rooms.
  - ◊ In open plan areas, install CO2 sensors in quantities per ASHRAE-62 requirements.
  - ◊ Install CO2 sensors within the breathing zone of the room, defined in ASHARE 62.1 as 3ft to 5 ft above the finished floor.
- Humidistats could be added into tenant spaces to moni-

TENANT DESIGN RECOMMENDATIONS (Cont'd.)

tor humidity levels and provide feedback information on thermal comfort inside the tenant space.

Materials:

- Use local materials, including materials manufactured locally and preferably those made with primary materials that are sourced locally.
- Use durable materials to save money and time for frequent replacement or cleaning (i.e. hard flooring made from ceramic, concrete, commercial rubber or linoleum have longer service life than vinyl or carpet as well as fewer indoor air quality concerns)
- Specify materials such as carpet with recycled content, preferably post-consumer and/or post industrial.
- Specify paints, wall coverings, carpets and adhesives with low emitting volatile organic compounds (VOC) and those that don't support microbial growth for better indoor air quality.
- Specify resilient or hard-surface floor coverings, such as linoleum, rubber or tile, that don't trap contaminants or dust.
- Select materials that are safe to handle (i.e. no hazardous metals, fibers or caustic chemicals) and use methods that minimize release of volatiles and trapped dust.
- Select materials that can be salvaged and reused, or at least recycled, and the end of their service life.

Electricity/ Lighting:

- Use light colors to enhance effects of daylight.
- Shade windows where possible to minimize effects of outdoor temperature during cooling periods.
- Incorporate lighting controls to enhance comfort and productivity within spaces.
- Use the energy-saving versions of office equipment and appliances. The US Department of Energy has developed the "ENERGYSTAR" program which labels computer monitors, office equipment and appliances. More information is available at http://www.energystar.gov.html.
- Select energy efficient light fixtures for reduced energy consumption.
- Design with low-energy density and reduced glare in mind.
- Utilize occupancy sensors to switch off lights in areas with intermittent use.

Recycling

- Tenants are encouraged to recycle regularly used items including paper, glass, cardboard and plastic.
- Recycling these products reduces the need to extract virgin materials and preserves natural habitat for many plant and animal species.
- Northgate Mall has developed its own recycling program and contracted with a waste removal company to regularly collect recyclable waste, sort it and take it to the appropriate recycling centers. It is encouraged that all tenants support the recycling efforts that are carried by the Northgate Mall operations staff.

Supplies:

- Utilize recycled paper products for store areas.
- Use recycled plastic bags for waste baskets in the stores.

TENANT DESIGN RECOMMENDATIONS (Cont'd.)

Construction Management:

- Have your contractor develop Construction Management Plan to minimize dispersal of dust or pollutants
- Request that your contractor separate debris to facilitate recycling.

B. Additional Recommendations

Green Cleaning

Replacing standard cleaning products with environment friendly, or "green" cleaning products has several positive benefits. Most directly, it eliminates harmful irritants that can negatively impact your health by causing adverse reactions from exposure to certain chemicals. Green cleaning products also keep chemicals out of the municipal water system, requiring less effort to clean and sanitize potable water and leaking less damaging products into natural water sources.

Northgate Mall has developed a green cleaning program for the mall's housekeeping staff. All common areas of the building, including the main lobby and all elevator lobbies, the interior of the elevators and corridors will be cleaned with environmentally friendly, healthy products. Northgate Mall will support its tenants in adopting a green cleaning policy and expects that its tenants will comply with the green cleaning requirements established for the Mall.

Use "Green" Pest Control Products

Some of the most toxic chemicals that can enter a space are when using commercial products to control, eliminate and deter pests. Many of the chemicals in these products are extremely hazardous to personal health and cause great disturbance to native plants and animals when flushed into the local environment. There are many highly-effective pest control methods that use either natural or non-toxic deterrents. These products are much safer to use, especially indoors, to ensure no adverse health effects are felt by building occupants. Northgate Mall has already developed a green pest control program for the building, contracting with a pest management company that does not use any toxic chemicals on the property.

Use Alternative Forms of Transportation

Vehicle use is one of the most significant causes of environmental pollution. The fossil fuels consumed in operating an automobile or truck emits carbon dioxide as a by-product of their combustion. One step to reduce the emissions from personal vehicles use is to purchase a hybrid vehicle that operates on electricity as well as fossil fuel and has a high gas mileage rating. Hybrid vehicles maintain more constant fuel efficiency in varying travel speeds and conditions. Shut-off of the combustion engine during idle and captured energy from braking means a hybrid will deliver higher fuel savings even for short in-town trips involving more starts and stops compared to a standard fuel vehicle which gain the most fuel economy when traveling at a constant higher speed over a greater distance as with interstate highway travel. Northgate Mall provides preferred parking spaces to employees and tenants who use hybrid or alternative fuel vehicles.

Another way to off-set emissions from automobiles is to use a shared car service. Having multiple members "share" a car reduces the need for each individual to have their own car, limiting the total number of cars on the road and thus reducing the total emissions from vehicular use. Car sharing may be more cost effective than owning a second household car when the cost of storage, maintenance and insurance are considered in comparison to membership and usage fees for participation in a car sharing program. Sharing a vehicle also encourages pre-

TENANT DESIGN RECOMMENDATIONS (Cont'd.)

planning for more tasks to be completed in a single trip, further reducing emissions.

Due to the building's location, there are many other options for getting around the City besides driving. There are two Marin County bus stations located within quarter mile from the Northgate Mall making it a viable solution for commute to the mall's occupants and visitors.

Green Finish Choices
Several elements in the Northgate Mall stores are constructed with environmentally friendly and healthy products. More than 50% of the existing building structure was reused on the project including walls, floor and some of the roof. The standard package carpeting and all common area carpeting is Carpet and Rug Institute Green Label Certified, which means it contains recycled content, is manufactured by a clean process and has few volatile organic compounds. The adhesives and sealants used to install the carpet and flooring, along with any other adhesive used in the interior of the building also contain low amounts of volatile organic compounds as does all the paint on the interior of the building. Other wall coverings also contribute to the sustainable interior design by containing recycled materials and having low amounts of volatile organic compounds in the products and adhesive. Volatile organic compounds (VOC) release toxic gasses as they cure and set that can be harmful when inhaled by humans.

To continue to keep its stores environmentally friendly, Macerich requests its tenants to use low-VOC materials when painting, or repairing surfaces. Products with recycled content or rapidly renewable materials have to be considered when replacing or repairing wall surfaces.

Use low-mercury CFL's in frequently lit lamps and ceiling fixtures
One of the most highly effective and publicly-touted ways of battling carbon emissions is to replace the incandescent bulbs in the most heavily used light fixtures in your store with compact fluorescent lamps (CFLs). CFLs are designed using small tubes filled with fluorescent gas that emit light after being ignited by electronic ballast.

Using CFLs is beneficial for a myriad of reasons. First, reduced emissions result from the need for less electricity to power the lights and thus less demand is placed upon the local utility grid, helping it maintain a greater level of reliability. Though CFLs cost somewhat more than typical incandescent lights, they will last up to 10 times as long and use only 25% of the electricity that it takes to power an incandescent bulb of the same light out-put. When purchasing CFLs look for brands with the Energy Star symbol, these will deliver the most consistent and energy-saving light. Also look for low-mercury versions to further reduce the amount of toxic output from each bulb.

Lower your thermostat in winter and raise it in summer; use timers and set-back controls.
Digital programmable thermostats have to be installed in all tenant units which will enable tenants to reduce space temperatures during periods when the mall is not occupied, thus reducing energy demand and cost for space heating and cooling. More energy and money is saved by turning the thermostat down or up (depending on the season) than to leave the thermostat set at a certain temperature 24 hours a day. Reducing the amount of required cooling or heating throughout the day reduces the demand for energy and, in return, reduces the cost of running the equipment.

TENANT DESIGN RECOMMENDATIONS (Cont'd.)

Consider programming your thermostats to adjust the temperature while the space is not occupied and at night time. Using the clock settings and timers on thermostats, temperatures could be reduced during the heating season, and can be programmed to shut off the air conditioning system during unoccupied periods of the summer cooling season. Adequate time should be allowed for the system to bring space temperatures back to the desired level prior to occupancy. Please refer to the owner's manual on the digital thermostat to learn how to program the timers.

PRODUCT RECOMMENDATIONS

The following are some suggestions about products tenants may want to consider when setting up their space or undertaking any renovation project. Not only will these projects aid in personalizing your space, but they will help uphold and promote LEED objectives and ultimately help you reap the financial, environmental, and health-related benefits that these products have to offer.

Products
There are several benefits to be gained from specifying 'green' appliances and equipment, applications, materials, and finishes for your project. Using products made from recycled materials can reduce the purchasing cost because extraction and refinement of raw materials was not needed. Using energy efficient appliances and equipment helps cut down on energy costs which leads to substantial savings over a lifetime, and minimizes environmental impact. By using goods that have low or no VOCs, you are preserving indoor air quality which promotes a healthy immune system, and keeps ecosystems robust and efficient.

Recycled Content and Regional Materials
The majority of materials used at Northgate Mall contain recycled content. Some of those materials include structural steel, insulation, gypsum board etc. When defining a new interior space, tenants are encouraged to consider building materials made with recycled content. Finding such materials is surprisingly easy and cost-effective. For example, some building materials that often contain recycled content are metal studs, drywall, and carpet, in addition to different types of salvaged wood which can be installed as flooring or decorative millwork. Not all brands have the same amounts of recycled content and therefore ask for products that have recycled content and are locally manufactured when talking with a contractor about purchasing materials.

By using locally extracted and regionally manufactured products, a healthy local economy is sustained which retains community capital, and provides a more stable tax base. Environmental impacts resulting from transportation are reduced, and local materials are often more responsive to local climate, which can aid in reducing your costs associated with temperature control and material break-down. Purchasing local materials for renovations can save transportation costs as smaller quantities don't always qualify for discounts on shipping.

Choose low-VOC Products
VOCs or Volatile Organic Compounds are chemicals that can enter and contaminate the surrounding atmosphere under normal conditions. While VOCs contribute to ozone depletion and global warming, they also have a more immediate effect on consumers' health in that they can be damaging to the upper respiratory system, especially those of small children and the elderly.

Information regarding the VOC content of a specific product and information such as reactivity, toxicity, and first aid methods are available to consumers in the form of an MSDS, or Material Safety Data Sheet. Such sheets can be obtained by calling a manufacturer directly and requesting the material, or by simply visiting the manufacturer's website. The following list contains few examples of low-VOC products for common surface finishing needs. They range from low-VOC options of common brand-name products to more exotic and highly eco-friendly items. There are many more options available, and you are encouraged to research on your own, or ask your contractor to specify low VOC products.

Paints and Finishes
Air quality is important to consider when selecting paint, for your safety and the safety of the environment. Low VOC paints and surface coatings release fewer toxins as they cure and wear, and have a noticeably less irritating smell. Proper disposal and usage methods

PRODUCT RECOMMENDATIONS (Cont'd.)

also ensure minimal contamination.

Sherwin-Williams (Carries Specific Low-VOC Paint)
www.sherwin-williams.com

Yolo Color house (No VOC Paints and Primers)
www.yolocolorhouse.com

The Old-Fashioned Milk Paint Company (No VOC Paints, Specialty Applications)
www.milkpaint.com

Adhesives and Sealants
Adhesives and sealants are very prevalent in many interior applications such as flooring, tile, and wall covering. Even long after these materials are installed, the adhesives and sealants can continue to release toxic gases. Using adhesives and sealants with a low VOC content helps reduce the amount of gases released, and helps improve the overall health of everyone living in your home.

OSI Sealants (All-Purpose Water-Based Sealants and Adhesives)
www.osisealants.com

AFM Safecoat & SafeChoice (Sealants, Adhesives)
www.afmsafecoat.com

Tried & True Wood Finishes (Wood Finishing and Maintenance Products)
www.triedandtruewoodfinish.com

Carpets
Manufacturing carpets involves many chemical processes that release VOCs even after final installation. Carpet pads and adhesives used to install the system also release VOCs. Although there are low-VOC options available, the Carpet and Rug Institute has its own qualification label called Green Label or Green Label Plus. Products with the Green Label designation are certified low-VOC and are made with other ecological attributes such as containing recycled content and using clean-air assembly methods which contributes to a healthy environment and ensures better health of those making the product. Carpet being replaced can usually be recycled through the carpet manufacturer. This process is usually done through the carpet installer. Ask if the manufacturer you choose has a recycling program and would be able to take the old carpet.

Mohawk
www.mohawkcarpet.com

Bentley Prince Street
www.bentleyprincestreet.com

Earth Weave Carpet Mills, Inc.
www.earthweave.com

PRODUCT RECOMMENDATIONS (Cont'd.)

Floor Coverings
Floor coverings such as vinyl tile and laminate flooring are also made from chemical processes that release VOCs after final installation. Adhesives and/or sealants used to install any kind of tile floor covering also contain VOCs. As with carpeting, ecologically designed products are available that use cleaner production methods and can contain recycled content.

Mannington (Laminate, Hardwood, Porcelain, Resilient Alternatives)
www.mannington.com

EcoTimber (Bamboo, Managed Hardwood Flooring)
www.ecotimber.com

Wicanders (Cork Flooring)
www.wicanders.com

Wall Coverings
Vinyl wallpapers are chemically processed similarly to vinyl floor coverings and also off-gas toxic VOCs after final installation. Adhesives used to apply any kind of wall covering contain VOCs. Using low-VOC options provides for a healthier indoor environment. Wall covering choices include recycled content or products made of rapidly renewable materials.

Caba Company (Alternative Wall Covering)
www.barkskin.com

Living Green (Grasscloths, Bamboo, Cork, Sisal)
www.livingreen.com

Phoenix Organics (Recycled Glass Tile, FireClay, Soapstone, Low VOC Grouts)
www.phoenixorganics.com

Finish Work, Cabinetry and Furniture
Wood is a common material for finish work, cabinetry and furniture. Selecting woods that are certified by the Sustainable Forestry Initiative or the Forestry Stewardship Council ensures that the wood comes from trees that are farmed specifically for lumber and are replaced in equal quantity of use. This prohibits the destruction of native forested areas for commercial wood use, and allows the natural cycle of wooded areas to continue. Rapidly renewable wood choices are also an ecologically-minded resource. A material qualifies as rapidly renewable if it can be naturally renewed within ten years. Wood products such as bamboo, cork, and some varieties of poplar are all considered rapidly renewable and are widely used in trim work and flooring.

Forest Stewardship Council
212 Third Avenue North, Suite 280
Minneapolis, MN 55401
Phone: +1 612.353.4511
Fax: +1 612.208.1565
www.fscus.org

PRODUCT RECOMMENDATIONS (Cont'd.)

For free-standing furniture, cushion fill and upholstery also come in ecologically sound choices. There are many opportunities for green materials to be incorporated in manufacturing a piece of furniture without sacrificing the look or style of a piece. Cushion fills and upholstery can be made with recycled or rapidly renewable materials. Adhesives can be low-VOC and washes and finishes can be water-based. As an added bonus, significant care can go into making a piece of green furniture, and it shows in the quality of the piece, making much of it heirloom quality.

Verde
www.verdedesignstudio.net

Crate & Barrel (Certain Collections)
www.crateandbarrel.com

Urban Hardwoods
www.urbanhardwoods.com

Urea-Formaldehyde, also known as urea-methanol, is a transparent thermosetting plastic or resin that is typically used in finishes, adhesives, or molded objects. It is also commonly used when making Medium Density Fiberboard (MDF), which is used in all kinds of building applications, especially cabinetry. As with VOCs, it is not safe to inhale the gas released by urea-formaldehyde resins. You can specifically request that MDF and other composites made with urea-formaldehyde resins are not used in your renovation. Provided below are manufacturers of such products.

Medite Corporation (a Division of Sierrapine Ltd.) \
www.sierrapine.com

Rodman Industries (Locally Produced)
www.rodmanindustries.com

Mechanical and Plumbing
The basic mechanical and plumbing systems for your store are large contributors to energy and resource use. There are ways to incorporate sustainability into the upkeep and upgrading of your space heating and cooling units and plumbing fixtures.

At the Northgate Mall, all tenant spaces have their own dedicated roof top units serving the heating and cooling needs of the space. Tenants are responsible for purchase and installation of these units within their spaces. Macerich recommends installing high efficiency rooftop units that exceed the efficiency requirements of California Title 24. These high efficiency units use a variable speed fan to provide conditioned air to the tenant space without wasting energy. To ensure the best efficiency and cleanest air in your space, filters on the rooftop units need to be replaced every three months with high-grade or HEPA-rated filters. Keeping the vents on the units clean will also reduce the dust and irritants from infiltrating the air in your space.

Carrier
www.commercial.carrier.com

Trane
www.trane.com

Lennox
www.lennox.com

Plumbing fixtures such as bathroom sinks and toilets all add to the energy use in a store. Pumps used to draw water up through pipes take energy to run as does heating water for cleaning. Reducing the amount of water used by a fixture reduces the strain on pumps and water heaters and can lower your energy consumption. Reduction in water usage also lessens the strain on civil water supplies and natural water sources.

PRODUCT RECOMMENDATIONS (Cont'd.)

Reducing a faucet or toilet's gallon per minute flow rate by even a half-gallon will result in visible savings for energy consumption and water use. All large fixture manufacturers offer reduced flow options in a large variety of styles and finishes to match even the most upscale tastes.

Kohler Plumbing
www.kohler.com

Toto USA, Inc.
www.totousa.com

Dornbracht Americas, Inc.
www.dornbracht.com

LEED AP's

The USGBC provides information on LEED Accredited Professionals who work in the building industry and offer expertise in further developing Sustainable and Green buildings technologies. LEED AP's are very knowledgeable in the entire process of Sustainable design and can be of great help when you are looking to make major renovations. A list of local LEED AP's can be found on the USGBC Website.

US Green Building Council
www.usgbc.org

LEED FOR COMMERCIAL INTERIORS

The U.S. Green Building Council (USGBC) has a program suited for Tenants in this building, LEED for Commercial Interiors. The LEED–CI rating system identifies performance standards that Tenants may follow to certify their project with the USGBC. The system's credits provide guidelines with the intent of assisting the Tenant and their design team in creating environmentally sound, efficient, healthful and affordable interior spaces and supportive environments for a productive workplace.

As in the LEED for Core & Shell rating system, LEED-CI addresses Sustainable Sites, Water Efficiency, Energy & Atmosphere, Materials & Resources and Indoor Environmental Quality. The Tenants who select a base building that is certified under the LEED for Core & Shell system, such as this one, are off to a great start due to the 3 credits gained under the Sustainable Sites category of the LEED-CI Rating system.

To participate in the USGBC's LEED-CI program, a team should first register with the USGBC via their website (www.usgbc.org), after which they may begin the process of collecting information and performing calculations to document compliance with criteria and requirements. Consider attending a LEED-CI workshop and visit their website for more detailed information. The recommendations listed in this document provide additional information that can contribute to a Tenant's LEED-CI project rating.

INFORMATION RESOURCES

- United States Green Building Council – www.usgbc.org
- American Society of Heating, Refrigerating and Air Conditioning Engineers – www.ashrae.org
- DOE (Dept. of Energy) – lighting, daylighting, appliances and more - www.eere.energy.gov
- Environmental Building News, GreenSpec Directory & Green Building Advisor by Building Green, Inc. www.buildinggreen.com
- Green Seal, Inc. Choose Green Reports, www.greenseal.org
- Green-e, Program for electricity from renewable sources, http://www.green-e.org
- Greener Buildings, by GreenBiz.com and the USGBC, http://www.greenerbuildings.com

APPENDIX

A. *LEED Program Information*

The USGBC certifies buildings through its LEED program. The program works by providing a set of performance standards for certifying both the design and construction phases of new developments. Projects are assessed on a set of possible credits and prerequisites to determine the level of certification achieved. Ratings are divided into four categories: Certified, Silver, Gold, and Platinum.

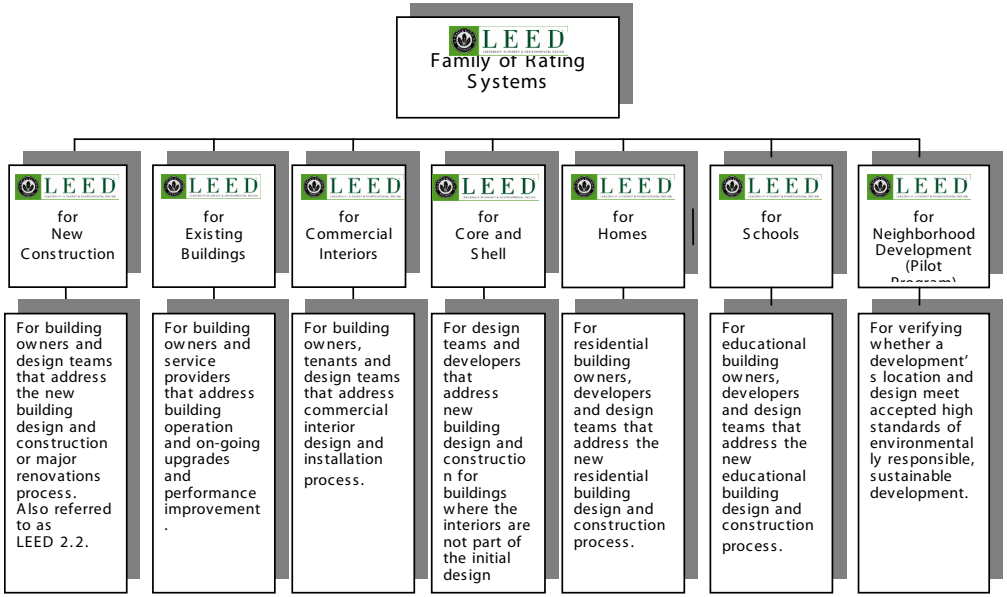
The credits and prerequisites are divided into six categories that address different components of building design, construction and final use. The categories are: Sustainable Sites, Water Efficiency, Energy and Atmosphere, Materials and Resources, Indoor Environmental Quality, and Innovation in Design. Each credit and prerequisite has its own criteria that must be met and corresponding required submittal material that must be provided in order for the credit to be earned.

Upon project completion, all attempted credits are submitted to the USGBC for review by its member board of reviewers. Credits are awarded individually, with the opportunity for the project team to dispute any negative ruling. Once all credits are awarded, a final project rating is determined and certification awarded.

A LEED project team usually consists of the building developer, architect, general contractor, civil engineer, commissioning agent, and a LEED Accredited Professional. The LEED AP may be associated with one of the project team members or may be a separate entity. Their role is to work with all members of the project team to create the most sustainable building possible, and keep everyone focused upon the LEED program requirements. Tools available for the LEED AP include the LEED Reference Guide, project checklist, on-line credit templates, and the USGBC website to track all achievable credits. The project checklist is usually determined by the design team at the start of the project and acts as a guide throughout the project for meeting LEED criteria.

Types of LEED Programs

LEED standards have been defined for different project and building types. LEED standards cover new commercial construction and major renovation projects, interiors projects, existing building operations, commercial core and shell construction, new home construction and schools. Standards are under development to cover neighborhood developments, retail for commercial interiors and retail for new construction. The following chart provides information on the family of LEED certifications currently available.



APPENDIX (Cont'd.)

LEED provides a roadmap for measuring and documenting success for every building type and phase of a building lifecycle. Specific LEED programs include:

LEED for New Construction (LEED NC)
LEED for New Construction and Major Renovations is a green building rating system that was designed to guide and distinguish high-performance commercial and institutional projects, with a focus on office buildings. Practitioners have also applied the system to K-12 schools, multi-unit residential buildings, manufacturing plants, laboratories and many other building types.

LEED for Existing Buildings (LEED EB)
LEED for Existing Buildings maximizes operational efficiency while minimizing environmental impacts. It provides a recognized, performance-based benchmark for building owners and operators to measure operations, improvements and maintenance on a consistent scale. LEED for Existing Buildings is a road map for delivering economically profitable, environmentally responsible, healthy, productive places to live and work.

The LEED Rating System for Existing Buildings addresses:

- whole-building cleaning and maintenance issues including chemical use
- ongoing indoor air quality
- energy efficiency
- water efficiency
- recycling programs and facilities
- exterior maintenance programs, and
- systems upgrades to meet green building energy, water, IAQ, and lighting performance standards

LEED for Commercial Interiors (LEED CI)
LEED for Commercial Interiors is the green benchmark for the tenant improvement market. LEED for Commercial Interiors gives the power to make sustainable choices to tenants and designers, who do not always have control over whole building operations. LEED for Commercial Interiors is the recognized standard for certifying high-performance green interiors that are healthy, productive places to work, are less costly to operate and maintain, and reduce environmental footprint.

LEED for Core & Shell (LEED CS)
The LEED Green Building Rating System for Core and Shell Development is for designers, builders, developers and new building owners who address sustainable design for new core and shell construction. Broadly defined, core and shell construction covers base building elements, such as the structure, envelope and building-level systems, such as central HVAC, etc. The LEED for Core and Shell product recognizes that the division between owner and tenant responsibility for certain elements of the building varies between markets. Northgate Mall is pursuing LEED Certification under the Core & Shell program.

LEED for Homes
LEED for Homes is a voluntary rating system that promotes the design and construction of high performance "green" homes. A green home uses less energy, water, and natural resources; creates less waste; and is healthier and more comfortable for the occupants. Benefits of a LEED home include lower energy and water bills; reduced greenhouse gas emissions; and less exposure to mold, mildew and other indoor toxins. The net cost of owning a LEED home is comparable to that of owning a conventional home.

APPENDIX (Cont'd.)

LEED for Neighborhood Development
The LEED for Neighborhood Development Rating System integrates the principles of smart growth, urbanism, and green building into the first national standard for neighborhood design. LEED certification provides independent, third-party verification that a development's location and design meet accepted high standards for environmentally responsible, sustainable, development.

LEED for Schools
The LEED for Schools Green Building Rating System recognizes the unique nature of the design and construction of K-12 schools. Based on LEED for New Construction, it addresses issues such as classroom acoustics, master planning, mold prevention, and environmental site assessment. By addressing the uniqueness of school spaces and children's health issues, LEED for Schools provides a unique, comprehensive tool for schools that wish to build green, with measurable results. LEED for Schools is the recognized third-party standard for high performance schools that are healthy for students, comfortable for teachers, and cost-effective.

LEED for Retail
The LEED for Retail program consists of two rating systems. One is based on New Construction and Major Renovations version 2.2. The other track is based on LEED for Commercial Interiors version 2.0. The LEED for Retail rating systems recognize the unique nature of retail design and construction projects. The rating systems address the specific needs of retail spaces including lighting, sites, security, energy and water concerns by providing tailored credit language and alternative compliance paths as needed.

LEED for Retail - New Construction Pilot
The pilot test is intended to gather market feedback on the applicability of these draft modifications to the LEED for New Construction v2.2 prerequisites and credits to green retail projects. Upon completion of the pilot test phase, the LEED for Retail - New Construction rating system will be open for public comment and balloted per USGBC policies and procedures.

LEED for Retail – Commercial Interiors Pilot
The pilot test is intended to gather market feedback on the applicability of these draft modifications to the LEED for Commercial Interiors v2.0 prerequisites and credits to green retail projects. Upon completion of the pilot test phase, the LEED for Retail – Commercial Interiors rating system will be open for public comment and balloted per USGBC policies and procedures. More information on the USGBC and LEED programs can be found at www.usgbc.org.

APPENDIX (Cont'd.)

B. Definition of Sustainability Terms

Albedo; Solar Reflectance – The ratio of the reflected solar energy to the incoming solar energy over wavelengths of approximately 0.3 to 2.5 micrometers. A reflectance of 100% means that all of the energy striking a reflecting surface is reflected back into the atmosphere and none of the energy is absorbed by the surface.

ASHRAE – American Society of Heating, Refrigerating and Air-Conditioning Engineers.
An international organization with a mission of advancing heating, ventilation air conditioning and refrigeration to serve humanity and promote a sustainable world through research, standards, writing, publications, and continuing education.

Commissioning – The process of ensuring that systems are designed, installed, functionally tested, and capable of being operated and maintained to perform in conformity with the owner's project requirements.

Glazing – Glass used in exterior windows and doors.

Green Building - The practice of building with the intent of increasing efficiency in the use and harvest of energy, water and materials and reducing the building's impacts on human health and the environment through better siting, design, construction, operation, and maintenance.

Heat Island Effect – When warmer temperatures are experienced in urban landscapes compared to adjacent rural areas as a result of solar energy retention on constructed surfaces.

HVAC – Heating, ventilating and air-conditioning systems used to provide thermal comfort and ventilation for building interiors.

LEED – Leadership in Energy and Environmental Design; program for Green and Sustainable Design building designation run by the USGBC.

Light Pollution – Waste light from building sites that produces glare, is directed upward to the sky or is directed off the site.

Post-Consumer Recycled Content – Waste material generated by households or by commercial, industrial and institutional facilities in their role as end-users of the product, which can no longer be used for its intended purpose.

Post-Industrial Recycled Content – Material diverted from the waste stream during the manufacturing process. Excluded is reutilization of materials such as rework, regrind or scrap generated in a process and capable of being reclaimed within the same process that generated it.

Rapidly renewable Materials – Material considered to be an agricultural product, both fiber and animal, that takes 10 years or less to grow or raise, and to harvest in an ongoing and sustainable fashion.

Recycled Content – Component of a material that has been previously used, either as waste from another manufacturing operation or as a manufactured produced that has reached the end of its useful life.

APPENDIX (Cont'd.)

Regional Materials – Products with components that are extracted processed and manufactured for final installation within a 500 mile radius of Northgate Mall site.

Stormwater - Water volumes that are created during precipitation events.

Sustainable Design – The practice of designing a building to comply with economic, social and ecological sustainability in mind.

USGBC – United States Green Building Council, the operating association of the LEED program.

VOC's (Volatile Organic Compounds) – Carbon compounds that participate in atmospheric photochemical reactions (excluding carbon monoxide, carbon dioxide, carbonic acid, metallic carbides and carbonates, and ammonium carbonate). The compounds vaporize (become a gas) at normal room temperatures.