Tenant Design and Construction Guidelines

Draft Proposed for Oro Valley Marketplace Shops A: 11-15-08

Oro Valley Marketplace Shops A has been designed to maximize the benefits of sustainable design, including lower long-term operating costs for the owner and tenants, an indoor environment designed to enhance occupant health, well-being and productivity, and a construction process to minimize environmental impacts. This document is intended to help the tenant, and the tenant's design team, take advantage of the building core and shell systems. It is divided in two sections.

Section One

The first section, **Core and Shell**, will

- Communicate the sustainable features of the building
- Identify the systems provided to the premises by the owner

Section Two

The second section, **Tenant Build-out**, will

- Define the *requirements* for tenant build-out
- Provide *recommended guidelines* to help the tenant take advantage of the sustainable approach
- Assist the tenant in achieving a LEED-CI (Commercial Interiors) for Retail rating for the build-out, if desired. Currently, 10 points are provided to the tenant by the base building. We encourage our tenants to achieve 13 additional points and the opportunity to earn LEED-CI Certified. A LEED-CI checklist is attached for your reference. You may also download the LEED-CI checklist at http://www.usgbc.org/DisplayPage.aspx?CMSPageID=145.
- For projects registered after Jan 1 2009, LEED-CI 2009 requirements will apply.

These Guidelines are subject to modification at Landlord's sole discretion and modifications will be provided in writing to tenants.

Section One
Core and Shell (Base Building)

Core and Shell Sustainable Design and Construction Features

The building has been constructed using an integrated design green building process and is applying for the US Green Building Council's (USGBC) Leadership in Energy and Environmental Design (LEED) Basic certification for the Core and Shell (LEED-CS) rating system upon the building's completion. As a result, the building provides the infrastructure for superior comfort with less energy use and cost. Each section of the Tenant Guidelines includes;

- summary description of the Core and Shell building system
- system provision to the tenant (as applicable)

BUILDING ENERGY EFFICIENCY

Summary

The building is designed such that the building envelope (exterior walls, windows, roof, etc.) improves the building energy performance to be at least 14% more efficient than the baseline energy code (ASHRAE 90.1-2004). The building energy performance should be at least 14% less energy than the baseline energy standard. The specific building provisions are described below.

System Provisions

Each tenant premise has been provided with its own packaged air conditioning unit. The tenant will be responsible for installing all ductwork, as needed, within their space.

The HVAC and electrical parameters, listed below, should be followed as the tenant designs the build-out of their space. Allowances are lower than a typical building because the following specifications were designed based on the requirement that all tenants use energy efficient fixtures and appliances. The tenant design criteria for energy use is required to be at least 14% less energy than the baseline standard (ASHRAE 90.1 2004).

VENTILATION AND OUTDOOR AIR DELIVERY REQUIREMENT

Summary

Outdoor air delivery is monitored to provide appropriate levels of fresh air by monitoring carbon dioxide (CO_2) levels. CO_2 is the colorless, odorless gas we exhale when we breathe. Excess levels of CO_2 can cause drowsiness and reduce productivity.

System Provisions

Each tenant premise is monitored for CO_2 through airflow monitoring in the HVAC system. Fresh air is provided when CO_2 levels drop below target level.

CONSTRUCTION IAQ MANAGEMENT GUIDELINE

Summary

Indoor air quality (IAQ) has a major impact on office and retail environments. A major culprit of poor IAQ is the construction process; dust and other particulates can accumulate and infiltrate spaces if adequate care is not exercised during construction, especially to protect the HVAC system.

Provisions

Construction impacts on air quality are reduced by following a Construction IAQ Management plan created for the primary construction process. The plan includes measures to protect ductwork from internal accumulation of dust, protecting construction materials from excessive moisture absorption, appropriate treatment and replacement of filtration media, and other measures. For complete information, see the Construction IAQ Plan for the project. (Note: this regards the base building construction. Tenants are required to implement an IAQ Plan as described in Section Two of this document.)

INDOOR CHEMICAL AND POLLUTION SOURCE CONTROL GUIDELINE

Summary

Chemicals used in cleaning and maintaining a building can cause discomfort and generate occupant health issues and complaints if not adequately managed. The intent of these provisions is to reduce occupant exposure to hazardous airborne elements that might be present in cleaning and maintenance materials, and to reduce particulate matter and contaminants brought into the building from the outside.

System Provisions

Oro Valley Marketplace Shops A uses a system of filters on outside air intakes. At each entrance floor grates/grilles are recommended to capture dirt and trap particulate matter from entering the building and mixing with the building's air exchange.

CONTROLLABILITY OF SYSTEMS GUIDELINE

Summary

Control of various systems (especially ventilation, light, and heating/cooling) by individuals or small groups can increase occupant productivity, comfort, and well being.

System Provisions

Individual control of lighting is recommended to be provided by the tenant through switching systems or through task lighting, but is not supplied by the building.

Since the tenant installs duct work serving the space, it is also recommended the tenant consider implementing zoning if greater than 1000sf control of heat and air conditioning during design and build-out.

THERMAL COMFORT

Summary

The heating, ventilation, and cooling (HVAC) system serving the building is designed to provide a comfortable thermal environment for the occupants. It meets the requirements of ASHRAE Standard 55-2004, Thermal Comfort Conditions for Human Occupancy.

COMMISSIONING – GUIDELINES (*REQ'D FOR LEED –CI; SUGGESTED FOR TENANTS BUT NOT REQUIRED IN THE LEASE)*

Summary

Commissioning is an important way to verify that the building's energy related systems (HVAC, electrical) were installed as specified and are performing in accordance with project requirements. Benefits of commissioning include reduced energy use, lower operating costs, and reduced contractor callbacks.

System Provisions

Fundamental commissioning will be pursued for LEED-CS. Commissioning of a space begins at project inception and involves key participants such as the building owner, users, occupants/tenants, operations & maintenance staff, and design professionals. This building is commissioned so that all systems are operating as designed. Approximately 10 months post-occupancy, the building will undergo enhanced commissioning. During this time systems will be adjusted and calibrated to user needs and building demands with the intention to maintain optimal energy efficiency and improved indoor environmental conditions.

CONTROL OF ENVIRONMENTAL TOBACCO SMOKE

Summary

A prerequisite with LEED-CS is to control occupant exposure to second hand smoke or environmental tobacco smoke (ETS). There are a few approaches for meeting this prerequisite if smoking is permitted indoors; such as separately exhausting smoking rooms. However, the most straightforward way to earn this point is to prohibit smoking in the building and designate a 25-foot setback from building entries, air intakes and operable windows. This building prohibits smoking indoors.

System Provisions

The Smoke Free Arizona Act went into effect May 1, 2007 and establishes an immediate prohibition on smoking in most indoor public facilities and places of employment. It prohibits smoking in, and within 20 feet of the entrance to all enclosed public places and places of employment, including indoor shopping malls, sports arenas, health care facilities, and public and private schools. The LEED-CS requirement for controlling ETS is more stringent and enforced at this building.

Section Two
Tenant Build-out

Requirements and Recommendations

The core and shell building has been constructed using a green building process. As a result, the building provides superior comfort with less energy use and cost. This section includes:

- Build-out *requirements*
- Build-out *recommendations*- that may assist the tenant in taking full advantage of the space
- Guidance in achieving a LEED-CI rating, including a LEED-CI checklist identifying each of the base building points

The table below references the LEED-CI for Retail credits related to each category. Please refer to the US Green Building Council's website (www.usgbc.org) for more information about LEED-CI for Retail. (This is the least developed of the rating systems and may be subject to considerable changes.)

REQUIREMENTS	RECOMMENDATIONS
Energy & Atmosphere *Optimize Energy Performance* EA Credit 1.1	***Materials & Resources*** *Resource Reuse* MR Credit 3.1, 3.2
Water Efficiency *Water Use Reduction* WE Credit 1.1, (1.2)	***Materials & Resources*** *Recycled Content* MR Credit 4.1
Materials & Resources *Construction Waste Mgmt/ Recycle C&D Debris* MR Credit 2.1, 2.2	***Materials & Resources*** *Regional Materials* MR Credit 5.1, 5.2
Indoor Environmental Quality *Construction IAQ Mgmt Plan* EQ Credit 3.1	***Materials & Resources*** *Rapidly Renewable Materials* MR Credit 6
Indoor Environmental Quality *Low-Emitting Materials* EQ Credit 4.1, 4.2, 4.3, 4.4, 4.5	***Materials & Resources*** *Certified Wood* MR Credit 7
Indoor Environmental Quality *Chemical and Pollutant Source Control* EQ Credit 5	***Indoor Environmental Quality*** *Controllability of Lighting* EQ Credit 6.1

Requirements

BUILDING ENERGY EFFICIENCY: LIGHTING, EQUIPMENT & APPLIANCES

Summary

As noted above, the base building is designed to improve the building energy performance to be at least 14% more efficient than the baseline energy code. Receptacle loads are intermittent (mainly maintenance equipment).

System Provisions

Lighting:

Requirement - All tenants are required to use energy efficient fixtures. For lighting loads, tenant spaces that reduce lighting power density to at least 15% more efficient than the baseline standard (ASHRAE 90.1 2004) earn one point. One or two additional points can be earned by reducing lighting power density by 25% or 35%, respectively.

Equipment & Appliances:

Receptacle loads are generated by any appliance or fixture that is plugged into an outlet. All new fixtures, equipment, and appliances are required to be energy efficient (Energy Star where available).

Requirement - For lighting and receptacle loads, tenant spaces are required to reduce lighting power density to at least 25% below the baseline standard (ASHRAE 90.1 2004) (Exceptions can be made on a case-by-case basis for tenants installing used equipment or fixtures). Spec sheets for all fixtures must be provided to landlord 5 business days prior to installation. Allowances to achieve these requirements are noted below:

Building Tenant Type	Lighting	Receptacle Loads
Commercial (Office)	1 watt/sf	1.5 watts/sf
Retail	1.3 watt/sf	1.5 watts/sf

70%, by rated-power, of ENERGYSTAR eligible equipment and appliances shall be ENERGYSTAR-rated based on either the 2007 or most recent ENERGYSTAR standard for the eligible equipment or appliance category. (1 point);
OR
• 90%, by rated-power, of ENERGY STAR eligible equipment and appliances shall be ENERGY STAR-rated based on either the 2007 or most recent labeling standard, per LEED-CI for Retail pilot)

HVAC:

If any additional HVAC air conditioning equipment is added to the Lessee's space in excess of HVAC air conditioning equipment supplied by the Lessor as part of the Core & Shell building the equipment shall use CO2 sensors to monitor the CO2 level in each thermal zone in the Lessee's space and increase the outdoor air when the CO2 level is within 10% of the alarm set-point. **(Additional cost item if tenant provides additional cooling/heating), based on the LEED-CI-Retail pilot requirements.**

Note:

1. *This requirement is for LEED CREDIT EQc1, Outdoor Air Delivery Monitoring.*

WATER USE REDUCTION

Intent – Maximize water efficiency within buildings to reduce the burden on municipal water supply and wastewater systems. This requirement applies only to those tenants that are installing plumbing fixtures in their space. For all other tenants, water use reduction credits are provided by the base building.

Requirement – Installation of flow restrictors and /or reduced flow aerators on lavatory, sink and shower fixtures; installation of high-efficiency toilets such as dual-flush water closets and high-efficiency urinals such as 0.5-gallon per flush, 1 pint (0.125-gallon) per flush and non-water consuming urinals.

Any fixtures installed by tenants are required to use 20% less water than the table below, taken from the Energy Policy Act of 1992 and amended. A spec sheet of all fixtures must be provided to landlord 5 business days prior to installation.

The following are some of the manufacturers:

- AM Conservation Group, Inc. Faucet Aerators www.amconservationgroup.com
- Kohler Co. Dual Flush and High Efficiency Toilets, High Efficiency Urinals, Eco Shower Heads www.us.kohler.com
- Niagara Conservation Co. Earth Massage Shower Head www.niagraconservation.com
- Sloan Valve Co. Dual Flush Toilets www.sloanvalve.com
- Toto Dual Flush and High Efficiency Toilets, High Efficiency Urinals, Eco Shower Heads www.totousa.com
- Zurn Dual Flush and High Efficiency Toilets, High Efficiency Urinals, Eco Shower Heads www.zurn.com/operations/ecovantage/pages/home.asp.

Fixture	**Energy Policy Act Base Fixture Water Usage**	**Tenant Requirement for Plumbing Fixture Water Usage**
Water Closets (gallons per flush)	1.60	≥ 1.28
Urinals (gallons per flush)	1.00	≥ 0.80
Showerheads (gallons per minute)*	2.50	≥ 2.00

Faucets (gallons per minute)**	2.20	≥ 1.76

*When measured at a flowing water pressure of 80 pounds per square inch (psi)
**When measured at a flowing water pressure of 60 pounds per square inch (psi)

CONSTRUCTION WASTE MANAGEMENT – USE ONLY WHEN CONSTRUCTION DUMPSTERS ARE UTILIZED

Intent – Divert construction and demolition debris from disposal in landfills and incinerators. Redirect recovered recyclables back to the manufacturing process. C&D recycling is required by the City of Chicago Construction and Demolition Site Waste Recycling Ordinance and is standard and customary for contractors who operate in the City of Chicago.

Requirement – Recycle and/or salvage at least 75% of non-hazardous construction and demolition (C&D) debris. Select a waste hauler/recycler capable of tracking construction debris via waste haul receipts, waste management report, spreadsheet, etc. Documentation showing compliance with 75% C&D recycling must be submitted to landlord. The building has a list of services that can help you comply with the ordinance.

CONSTRUCTION IAQ MANAGEMENT PLAN- DURING CONSTRUCTION

Intent – To avoid negative air quality impacts on the tenant space and the rest of the building associated with construction activities that generate dust, fumes, and other particulates.

Requirement – Develop a Construction Indoor Air Quality (IAQ) Management Plan that follows SMACNA (Sheet Metal & Air-Conditioning Contractors' National Association) guidelines for controlling air pollutants during construction. A plan should be developed before construction begins and include an education session with contractors/subcontractors to layout expectations during the construction process. SMACNA guidelines include the following five control measures: protect HVAC system, source control, pathway interruption, housekeeping and scheduling. Tenants should avoid using permanently installed air handlers for temporary heating/cooling during construction if possible. An example IAQ Management Plan is attached for your reference.

- Provide a signed narrative by the general contractor or responsible party, declaring that a Construction IAQ Management Plan has been developed and implemented. In the narrative, declare the five Design Approaches outlined in this document were used during building's construction. Include a brief listing of some of the important design approaches employed.

- Indicate whether the air-handling units have been operated during construction. If the air handling units were operated during construction provide a list of each air filter used during construction and immediately upon occupancy. If the air-handling units were not operated during construction, provide a list of each air filter used immediately upon occupancy. Each description of air filter should include the MERV value, manufacturer name and model number.

- Provide 18 photographs—six photographs taken on three different occasions during construction—along with identification of the 5 design approaches featured by each photograph, in order to show consistent adherence to the credit requirements.

LOW-EMITTING MATERIALS

ADHESIVES & SEALANTS

Intent – Reduce the quantity of indoor air contaminants that are odorous, irritating and/or harmful to the comfort and well-being of installers and occupants.

The following are some of the manufacturers that offer low VOC products. Low-VOC products are widely available and, for many brands, incur no cost premium.

- Eco-Wise, (512) 326-4474
- Designer Floors of Texas, (512) 834-8767
- Sinan Co.(Auro brand), (916) 753-3104
- Hendricksen Naturlich Flooring, (707) 829-3959
- AFM Enterprises, (800) 239-0321, makes a sealant that blocks toxic fumes from carpets and adhesives
- ChemRex Inc., (612) 496-6000, PL Premium no-VOC construction adhesive
- United McGill, (800) 624-5535, (614) 443-5520, water-based mastic
- W. F. Taylor, (213) 802-1896, Envirotec adhesives, low VOCs

Requirements – All adhesives and sealants used on the interior of the building shall comply with the requirements of the following reference standards. A listing of each indoor adhesive, sealant and primer product to be used on the project must be submitted to landlord 5 business days prior to installation. This includes the manufacturer's name, product name, and specific VOC data (in g/L) for each product.

Architectural Applications	**VOC Limit [g/L less water]**
Indoor Carpet Adhesives	50
Carpet Pad Adhesives	50
Wood Flooring Adhesives	100
Rubber floor Adhesives	60
Subfloor Adhesives	50
Ceramic Tile Adhesives	65
VCT & Asphalt Adhesives	50
Drywall & Panel Adhesives	50
Cove Base Adhesives	50
Multipurpose Construction Adhesives	70

Structural Glazing Adhesives	100

PAINTS & COATINGS

Note: *USGBC believes that even if you do not paint the interior, you cannot guarantee that the future tenants will not. It seems they only feel comfortable giving a point for low VOC measures in lease requirements if you require each of the credits under EQc4.*

Intent – Reduce the quantity of indoor air contaminants that are odorous, irritating and/or harmful to the comfort and well-being of installers and occupants. Commonly referred to as low VOC (volatile organic compounds), these paints and coatings are formulated with less or no amounts of VOCs that contribute to global climate change and negatively affect indoor air quality.

The following manufacturers have Low- and No-VOC Paints. Low-VOC products are widely available and, for many brands, incur no cost premium.

- AFM (American Formulating and Manufacturing) www.afmsafecoat.com
- Benjamin Moore & Co. (Pristine® Eco-Spec®) www.benjaminmoore.com
- BioShield Paints www.bioshieldpaint.com
- Devoe Paint www.devoe.com
- Duron Paints and Wall coverings (Genesis Odor-Free products) www.duron.com
- Home Depot www.homedepot.com
- ICI Dulux Paints www.iciduluxpaints.com
- Kelly Moore www.kellymoore.com
- Old Fashioned Milk Paint Company www.milkpaint.com
- Sherwin-Williams (HealthSpec® paints) www.sherwin.com
- Dunn Edwards Sierra

Requirements – Paints and coatings used on the interior of the building shall comply with the following criteria, which can be found on the container label. A listing of each indoor paint and coating to be used on the building's interior must be submitted to the landlord 5 business days prior to installation. This includes the manufacturer's name, product name, and specific VOC data (in g/L) for each product.

Paint & Coating	Maximum VOC content
Paints, coatings & primers flat	50g/L
Paints, coatings & primers non-flat	150 g/L
Anti-corrosive & anti-rust paints applied to interior ferrous metal substrates	250 g/L
Clear wood finishes - varnish	350 g/L
Clear wood finishes – lacquer	550 g/L

Floor coatings	100 g/L
Shellacs – clear	730 g/L
Shellacs – pigmented	550 g/L
Sealers – waterproofing	250 g/L
Sealers – sanding	275 g/L
All other sealers	200 g/L
Stains	250 g/L

CARPET SYSTEMS

Intent – Reduce the quantity of indoor air contaminants that are odorous, irritating and/or harmful to the comfort and well-being of installers and occupants.

Requirement – All carpet installed in the building interior shall meet the testing and product requirements of the Carpet and Rug Institute's Green Label Plus program.

All carpet adhesives shall not exceed a VOC Limit of 50 g/L less water. These are commonly available, but may in some cases require special order. A listing of each carpet and carpet-cushioning product to be installed in the building interior must be provided to landlord 5 business days prior to installation.

COMPOSITE WOOD & AGRIFIBER PRODUCTS

Intent – reduce the quantity of indoor air contaminants that are odorous, irritating and/or harmful to the comfort and well-being of installers and occupants.

Requirement – composite wood and agrifiber products used on the interior of the building (defined as inside of the weatherproofing system) shall contain no added urea-formaldehyde resins. Laminating adhesives used to fabricate on-site and shop-applied composite wood and agrifiber assemblies shall contain no added urea-formaldehyde resins.

A listing of each composite wood and agrifiber product to be installed on the building's interior must be submitted to landlord prior to installation.

INDOOR CHEMICAL & POLLUTANT SOURCE CONTROL

Intent – Minimize occupant and tenants exposure to potentially hazardous chemical pollutants.

Requirement – To safeguard air quality, tenants with high-volume copy/printing centers or utilizing hazardous gases, chemicals, or mixing of chemicals (e.g. janitorial activities) shall design the storage or work spaces to be separately exhausted and physically separated from adjacent spaces and the building as a whole.

Provide walk-off mats at least six feet in the direction of travel, usually at store entrances, to limit introduction of outdoor contaminants and extend carpet life. Demonstrate that there is a

weekly cleaning service in place. Where appropriate, install permanent architectural entryway systems such as grills or grates to prevent occupant-borne contaminants from entering the space.

Requirements

Design to minimize and control pollutant entry into buildings and later cross-contamination of regularly occupied areas:
• Where hazardous gases or chemicals may be present or used (including garages, housekeeping/laundry areas and copying/printing rooms), exhaust each space sufficiently to create negative pressure with respect to adjacent spaces with the doors to the room closed. For each of these spaces, provide self-closing doors and deck to deck partitions or a hard lid ceiling. The exhaust rate shall be at least 0.50 cfm/sq.ft., with no air re-circulation. The pressure differential with the surrounding spaces shall be at least 5 Pa (0.02 inches of water gauge) on average and 1 Pa (0.004 inches of water) at a minimum when the doors to the rooms are closed.
• In mechanically ventilated buildings, provide regularly occupied areas of the building with air filtration media prior to occupancy that provides a Minimum Efficiency Reporting Value (MERV) of 13 or better. Filtration should be applied to process both return and outside air that is to be delivered as supply air.

Recommendations

MATERIALS & RESOURCES

RESOURCE REUSE – FURNITURE AND FURNISHINGS

Intent – Reuse building products and materials in order to reduce demand for virgin materials and reduce waste, thereby reducing impacts associated with the extraction and processing of virgin resources.

Approach – Use salvaged, refurbished or used furniture and furnishings for 30% of the total furniture and furnishings budget.

RECYCLED CONTENT

Intent – To increase demand for building products that incorporate recycled content materials, thereby reducing impacts resulting from extraction and processing of virgin materials.

Approach – Use materials with recycled content such that the sum of post-consumer recycled content plus ½ (one-half) of the pre-consumer content constitutes at least 10% (based on cost) of the total value of the materials in the project.

The value of the recycled content portion of a material shall be determined by dividing the weight of recycled content in the item by the total weight of all material in the item, then multiplying the resulting percentage by the total cost ($) of the item.

Post-consumer material is defined as waste material generated by households or by commercial, industrial and institutional facilities in their role as end-users of the product.

Pre-consumer material is defined as material diverted from the waste stream during the manufacturing process.

REGIONAL MATERIALS

Intent – Increase demand for building materials and products that are extracted and manufactured within the region, thereby supporting the use of indigenous resources and reducing the environmental impacts resulting from transportation.

Approach – use a minimum of 20% of the combined value of construction, furniture materials and products that are manufactured regionally within a radius of 500 miles.

Manufacturing refers to the final assembly of components into the building product that is furnished and installed by the tradesman.

RAPIDLY RENEWABLE MATERIALS

Intent – Reduce the use and depletion of finite raw materials and long-cycle renewable materials by replacing them with rapidly renewable materials.

Approach – Use rapidly renewable construction, materials and products made from plants that are typically harvested within a 10-year or shorter cycle, for 5% of the total value ($) of all materials and products used in the project.

CERTIFIED WOOD

Intent – Encourage environmentally responsible forest management.

Approach – Use a minimum of 50% of wood-based materials and products, which are certified in accordance with the Forest Stewardship Council (FSC) Principles and Criteria, for wood building components. These components include, but are not limited to, structural framing and general dimensional framing, flooring, sub-flooring, wood doors, finishes and furniture.

CONTROLLABILITY OF LIGHTING AND THERMAL SYSTEMS

(Taken from LEED-CI Retail pilot)

Intent – Provide a high level of lighting system and thermal comfort control for retail employees' individual workstations to promote the productivity, comfort and well-being of tenant occupants.

Requirements

Provide individual lighting controls for 90% of retail employees in office and administrative spaces, enabling, enabling adjustments to suit individual task needs and preferences.
AND
Provide individual thermal comfort controls for 50% of retail employees in office and administrative spaces to enable adjustments to suit individual task needs and preferences.

Potential Technologies & Strategies

Design the tenant space with occupant controls for lighting. Strategies to consider include lighting controls and task lighting. Integrate lighting systems controllability into the overall lighting design, providing ambient and task lighting while managing the overall energy use of the building.

Design the tenant space and systems with comfort controls to allow adjustments to suit individual needs or those of groups in shared spaces. ASHRAE Standard 55-2004 identifies the factors of thermal comfort and a process for developing comfort criteria for building spaces that suit the needs of the occupants involved in their daily activities. Control strategies can be developed to expand on the comfort criteria to allow adjustments to suit individual needs and preferences. These may involve system designs incorporating operable windows, hybrid systems integrating operable windows and mechanical systems, or mechanical systems alone. Individual adjustments may involve individual thermostat controls, local diffusers at floor, desk or overhead levels, or control of individual radiant panels, or other means integrated into the overall building, thermal comfort systems, and energy systems design. In addition, designers should evaluate the closely tied interactions between thermal comfort (as required by ASHRAE Standard 55-2004) and acceptable indoor air quality (as required by ASHRAE Standard 62.1-2004, whether natural or mechanical ventilation).

TENANT SPACE/IMPROVEMENT REQUIREMENTS

The following building standards are to be included in **every existing and new lease** to ensure that the LEED Core and Shell Development Version 2.0 standards are being met and continue to be met for every tenant. Part 1 includes requirements that every tenant should meet. Many of these requirements are bases on ASHRAE standard and are actually equal to or slightly less stringent than the International Mechanical Code or the code required by the local governing authority. The stricter of the codes will need to be followed. These standards are intended to conserve energy, reduce water use and improve indoor air quality for the users of the building.

Part 2 are requirements that will have to be met if the tenant makes changes or additions to the building including, but not limited to, the roof, exterior walls, structural members or Landlord provided HVAC equipment.

PART 1 Base Lease Requirements

All modifications to the Tenant's space shall comply with the following requirements that are based on ASHRAE's Advanced Energy Design Guide for Small Retail Buildings (AEDGSR). See www.ashrae.org/aedg:

A. Optimize Energy Performance

Electrical Section	Equipment	Specifics
Interior Lighting		
(See AEDGSR, Chapter 5, Sections EL1, EL3, EL4, EL14, EL16-25)	Lighting Power Density (LPD)	1.3 W/ft^2 (watts per square foot)
(See AEDGSR, Chapter 5, Sections EL7, EL8)	Linear Fluorescent w/ high-performance	91 mean lm/W (lumens per watt)

	electronic ballast	
(See AEDGSR, Chapter 5, Sections EL9, EL10)	All other interior lighting	50 mean lm/W
(See AEDGSR, Chapter 5, Sections DL1-9, EL15)	Dimming controls for daylight harvesting under skylights	Continuously dim fixtures within 10 ft of skylight edge
(See AEDGSR, Chapter 5, Section EL13)	Occupancy controls	Auto-off in all non-sales rooms
(See AEDGSR, Chapter 5, Sections DL2, EL5)	Interior room surface reflectance in daylit locations	80%+ on ceilings 70%+ on walls
(See LEED-CS Version 2.0 Reference Guide; Sustainable Site : Credit 8)	Option 1: Automatic lighting controls	Turn off non-emergency lighting following business hours, or between the hours of 11:00p.m. and 5:00a.m. After hours override may be provided by manual or occupant-sensing device, provided that the override lasts no more than 30 minutes.
	OR	
	Option 2: Interior lighting shielding	All openings in the envelope (translucent or transparent) with a direct line of sight to non-emergency lighting shall have shielding (for a resultant transmittance of less than 10%) that will be controlled/closed by automatic device between the hours of 11:00pm and 5:00am
Additional Interior Lighting for Sales Floors		
(See AEDGSR, Chapter 5, Sections EL1, EL2, EL10, EL11, EL12, EL14, EL20, EL21)	Additional Lighting Power Density (LPD) for adjustable lighting equipment that is specifically designed and directed to high-light	<=0.4 W/ft^2 (spaces not listed below)
	merchandise and is automatically controlled separately from the	<=0.6 W/ft^2 sporting goods, small electronics

	general lighting	<=0.9 W/ft (furniture, clothing, cosmetics, and artwork)
		<=1.5 W/ft (jewelry, crystal, china)
	Sources:	Halogen IR or CMH
	Perimeter Accent Lighting Angle:	No more than 40 degrees up from vertical
	Accent Lighting Angles in open store areas:	No more than 30 degrees up from vertical
	Color Rendering Index (CRI):	80 or better

In order to achieve the above requirements, the following strategies are recommended, however, other means may be used to meet the above metrics.

Automatic Controls: Examples include sweep timers; occupancy sensors; or programmed master lighting control panels for internal lighting. Astronomical control clocks, photosensors, or programmed master lighting control panels for external signage lighting.

Daylighting: Photosensors, either open or closed loop, should continuously dim loads within daylit areas, 10' extended from edge of skylight, to at least 20% full load. Dimming should take place at 120% of targeted general foot-candle levels in space. Calibration and commissioning of photosensors to be done when room surfaces are complete and tenant products installed. (AEDGSR, DL6-9)

Accent Lighting: Lighting walls with wall washing techniques create a sense of pleasantness and space. Additionally, accent lighting on wall perimeters should be no more than 40 degrees up from vertical. Accent lighting items in open areas within the space should be no more than 30 degrees up from vertical. Accent light levels of 3 to 10 times the general lighting are recommended to create feature displays. Window accent light levels of 10 times the general lighting are appropriate to attract customers. Nighttime window display light levels should be reduced down to 3 times the general lighting to assist in eye adaptation when entering and exiting the store. (AEDGSR, EL1-2 and EL20)

Decorative Lighting: This lighting (wall sconces and pendants) is included in the tabulation for the base LPD. Energy efficient sources, such as compact fluorescent, ceramic metal halide (CMH), and LEDs are encouraged. (AEDGSR, EL3)

Casework Lighting: Lighting integral to the case design and installed by the casework manufacturer is not included in the base LPD. Energy efficient sources,

such as compact fluorescents, T2 fluorescent, and LED are encouraged. (AEDGSR, EL4)

Color Rendering Index of Lamps: A CRI of 80 or greater is recommended. (AEDGSR, EL6)

Occupancy Sensors: Install in all non-sales areas. For daylit areas, manual on/automatic off sensor logic is the most energy saving configuration. Ceiling sensors are preferred. Time delay settings that turn lights off after 15 minutes of no movement are preferred to preserve lamp life. (AEDGSR, EL13)

Lighting Circuits and Automatic Controls: Put general, all accent, and all display case lighting on separate circuits and switches. Automatic controls should turn accent and display case lighting on no more than 20 minutes before opening and 20 minutes after closing hours. Accent lighting mounted on track can use current limiting devices on the track to prevent additional load from being put on the track in the future, therefore increasing the general lighting LPD. (AEDGSR, EL14)

Exit Signs: Use LED lamped exit signs that use no more than 5 watts per face. (AEDGSR, EL15)

Non-Sales Areas: Lighting in these areas should be limited to 1.0W/sq ft to allow more LPD in the sales areas. (AEDGSR, EL25)

B. Minimum Indoor Air Quality Performance

Tenant's space shall be designed to meet the minimum requirements of ASHRAE Standard 62.1-2004 using the Ventilation Rate Procedure based on the actual space use classifications. The supplied outside air rate shall exceed the minimum required by ASHRAE 62.1-2004 by a minimum of 30% for the space use classification of the Tenant's type of business.

C. Increased Ventilation

Tenant space supplied outside air shall exceed the minimum required by ASHRAE 62.1-2004 by a minimum of 30% for the space use classification of the Tenant's type of business.

D. Water Use Reduction

Tenant space shall be designed to use 30% less water than a standard space by using water conserving fixtures where possible. The following requirements must be met for each fixture:

Water closets (toilets) to be dual flush (1.6gpf / 0.8 gallons per flush(gpf)).
Urinals to be waterless or ultra/low flow (0.125 to 0.5 gpf).
Lavatory faucets to be metered (0.5 gallons per minute (gpm) at 15 second cycle).
Sink faucets to be low flow (1.8 gpm or below).
Showers to be low flow (1.8 gpm or below)

E. Exterior Lighting

Tenant provided externally illuminated signage lighting to not exceed 0.2W/sqft. Façade lighting is not provided nor can be added by the Tenant.

PART 2 Special Requirements

This part of the Lease to be used when the tenant makes changes or additions to the building including but not limited to the roof, exterior walls, structural members or Landlord provided HVAC equipment.

A. Fundamental Refrigerant Management

Any additional air conditioning equipment added to the Tenant's space in addition to air conditioning equipment supplied by the Landlord as part of the Core & Shell building shall not use CFC-based refrigerants. Refrigerant type for all HVAC equipment shall be listed on the mechanical schedule(s) for that HVAC equipment being provided under the tenant improvement.

- HVAC equipment that uses R-410A refrigerant satisfies this requirement.
- HVAC equipment with R-22 refrigerant is not acceptable.
- After January of 2010 HVAC equipment using R-22 refrigerant will no longer be manufactured.

B. Optimize Energy Performance

HVAC: Equipment & Accessories: ***(Efficiencies – No additional Cost, Refrigerants – Additional cost item) New info just added by Patrick 11/14***

Rooftop HVAC units must meet the following minimum requirements:

Air conditioner (0-65 kBtuh):	13 SEER
Air conditioner (>65-135 kBtuh):	11.3 EER, 11.5 IPLV
Air conditioner (>135-240 kBtuh):	11.0 EER, 11.5 IPLV
Gas Furnace (0-225 kBtuh - SP):	80% AFUE or EF
Gas Furnace (>225 kBtuh - SP):	80% AFUE or EF

Heat Pumps 0 to 65 MBH 13.0 SEER / 7.7 Heating Seasonal Performance Factor (HSPF)
Efficiencies: > 65 MBH to 135 MBH 10.6 EER / 11.0 IPLV / 3.2 COP
Economizer & Ventilation: Provide:
Economizers with controllers to close during night setback
CO2 sensors for Demand Control Ventilation.

Ductwork:

Design Friction Rate: Maximum 0.08" W.C./100 ft
Sealing: Seal Class B
Duct Location: Internal below roof level building insulation only.
Insulation Level: R-6, except where ductwork is exposed in the occupied tenant space
Flex Duct: 5-foot max length

Water Heating:

Water heating systems for tenant spaces shall comply with the following efficiencies and pipe insulation requirements:

Electrical storage <=12kw and >20 gal	Efficiency Factor (EF)>0.99-(0.0012*Volume gallons)
Pipe insulation d<1-1/2"	1" insulation
d>=1-1/2"	1-1/2" insulation

Architectural:

Tenant modifications to the exterior walls shall maintain an R-Value of R-19 or greater.

Tenant installed doors to the exterior of the shell shall be insulated hollow metal doors and frames with a U-Value of U-0.07 or better (R-14).

Tenant installed skylights shall meet the following criteria:

Only 3% of the gross area of the roof encompassing the Tenant space can be equipped with skylights.

The Thermal transmittance of the skylight shall have a U-Value of U-1.36 or higher.

The Solar Heat Gain Coefficient (SHGC) shall be 0.19 or greater.

C. Enhanced Refrigeration Management

Any additional HVAC air conditioning equipment added to the Tenant's space in excess of HVAC air conditioning equipment supplied by the Landlord as part of the Core & Shell building shall not cause the overall building to exceed the Refrigerant Impact Per Ton limitation of 100. To achieve the LEED point for Enhanced Refrigerant Management, the Landlord provided Core & Shell HVAC rooftop heat pump units are limited to 2.11 lbs/ton for 5-ton units (10 units) and 1.22 lbs/ton for 6-ton units (2 units) and have a weighted refrigerant impact per ton of 99.4. Tenant's engineering team must verify any additional units added do not cause the Core & Shell building to exceed the impact limitation of 100.

D. Outdoor Air Delivery Monitoring

Any additional HVAC air conditioning equipment added to the Tenant's space in excess of HVAC air conditioning equipment supplied by the Landlord as part of the Core & Shell building shall use CO2 sensors to monitor the CO2 level in each thermal zone in the space and increase the outdoor air when the CO2 level is within 10% of the alarm set-point.

LEED CREDIT Eac1

ASHRAE Advanced Energy Design Guide for Small Retail Buildings (AEDGSR)

Tenant Improvement Checklist

This checklist is for a tenant space design or tenant improvement only. Items that are provided by the Lessor as part of the space design or improvement are required to comply with the

requirements of AEDGSR in the Tenant or Lessor construction plans.

HVAC Section	Equipment	Specifics	Documented on Sheet Number
Rooftop Equipment Chapter 3 Climate Zone Recommendation:	Heat pumps 0 to 65 MBH	13.0 SEER 7.7 HSPF	Provided by Lessor as part of Core & Shell plans.
Chapter 3 Climate Zone Recommendation:	Heat pumps > 65 MBH to 135 MBH	10.6 EER/11.0 IPLV 3.2 COP	Provided by Lessor as part of Core & Shell plans.
Chapter 5, HV1-3	Equipment Type, Cooling and Heating Loads	Consider packaged-unit systems, cooling/heating loads per ASHRAE Handbook - Fundamentals	Per HV2 Equipment is packaged rooftop heat pumps. Per HV3 Load calculations are based on ASHRAE Fundamentals using Carrier HAP Software.
Chapter 5, HV4	Humidity Control	Select systems w/cooling part-load performance or multiple compressors to minimize hours the RH remains above 60%.	Per USGBC Credit Interpretation Request (CIR) dated 10/18/2004 this project is located in a geographic area that generally does not require active humidification / dehumidification systems to maintain thermal comfort under ASHRAE 55-2004.
Chapter 5, HV6	Equipment Efficiency	Equipment should exceed the minimum efficiencies for cooling, heating, and part load modes recommended in Chapter 3.	Provided by Lessor as part of Core & Shell plans.
Chapter 5, HV12	Fan Motors	Motors for fans 1 HP or greater should meet NEMA premium efficiency guidelines when available.	No fan motors provided as part of the Tenant Improvement Plans are 1 HP or greater.
Chapter 5, HV16	Filters	Filters should be at least MERV 8	Filters are provided in the Core & Shell equipment.
Chapter 5, HV17	Heating Sources	Minimum airflow/ safety shutoff in	Electric strip heat and gas furnaces are not provided

		electric resistance heat and gas furnace	in this project.
Chapter 5, HV20	Heating Supply Air Temperatures	Ducts and Supply Air Register Temperatures should be selected based on air temperature and flow rate.	Ducts and Air Supply Devices are selected based on criteria in the ASHRAE Handbook – Fundamentals for temperature, flow rate, and throw.
Economizer & Ventilation	Economizer with controller sequenced for DCV & closed during night setback	Provide with motorized outdoor air dampers	Provided by Lessor as part of Core & Shell plans.
		CO2 sensors for Demand Control Ventilation	Provided by Lessor as part of Core & Shell plans.
Chapter 5, HV7	Outside Air	The amount of outside air should be based on ASHRAE 62.1-2004.	Per EQc2 tenant space design provides 30% more outside air than the minimum required by 62.1-2004. *See Sheet M_, "Outdoor Air Schedule."*
Chapter 5, HV8	Exhaust Air	Central exhaust systems should be interlocked w/HP-units & have motorized back draft dampers to close during setback.	There are no central exhaust systems provided as part of the tenant improvement plans.
Chapter 5, HV23	Economizers	Economizers should be employed to provide free cooling when suitable.	Provided by Lessor as part of Core & Shell plans.
Ductwork	Design Friction Rate	Maximum 0.08" W.C./100 ft	*M_*. See Specification *Section __*.
Chapter 3 Climate Zone Recommendation:	Sealing: (See Chapter 5, HV11 below)	Seal Class B	*M_*. See Specification *Section __*.
Chapter 3 Climate Zone Recommendation:	Duct Location:	Internal below roof level building	M1. There is no external ductwork in this project.

		insulation only	
Chapter 3 Climate Zone Recommendation:	Insulation Level:	R-6, except where ductwork is exposed in the occupied space	*M_. See Specification Section __.*
Chapter 3 Climate Zone Recommendation:	Flex Duct:	5-foot max length	*M_. See Specification Section __, Flexible Ductwork.*
Chapter 5, HV9	Duct Distribution	Air should be ducted through low-pressure ductwork with a system pressure classification of less than 2" WC.	Supply, return, and exhaust duct systems are designed for system classification of less than 2" WC. *See M_, Specification Section ___.*
Chapter 5, HV9	Duct Distribution	Diffusers and registers should be sized with a static pressure drop no greater than 0.08"	*M_. See "Air Device Schedule" Note No. _.*
Chapter 5, HV9	Duct Distribution, Flex Duct	Flex duct should be of the insulated type and should be:	*See M_, Specification Section ___.*
		1. limited to connections between duct branch and diffusers.	*M1,* Mechanical Plan.
		3. installed without any kinks.	*M_. See Specification Section __, Flexible Ductwork.*
		4. installed with a durable elbow support when used as an elbow, and	*M2, Mechanical details. See Detail No. __*
		5. installed with no more than 15% compression from fully stretched length.	*M_. See Specification Section __, Flexible Ductwork.*
		6. hanging straps, if used, need to use a saddle to avoid crimping the inside cross sectional area. For 12" or less diameter use a 3" saddle, for	*M2, Mechanical details. See Detail No. __*

		larger than 12" duct use a 5" saddle.	
Chapter 5, HV10	Duct Insulation	All supply, return, and exhaust ducts below the roof level insulation should be insulated and have a vapor barrier where condensation is possible.	See *M_, Specification Section ___*
Chapter 5, HV11	Duct Sealing & Leakage	Duct should be sealed per Seal Class B from 90.1 and leak-tested at the rated pressure.	*M_.* See Specification *Sections __ & __, Duct Sealing & Testing & Balancing.*
Chapter 5, HV18	Return and Relief Air	Relief fans should be used to maintain building pressurization. Where return duct static exceeds 0.5" WC return fans should be used.	*Relief is accomplished through restroom exhaust fans and economizer relief.*
Water Heating Chapter 3 Climate Zone Recommendation:	Electric storage <= 12 kW and > 20 gal	EF > 0.99-0.0012 * Volume (gals)	Water heating is not provided as part of the Tenant Improvement.
Chapter 3 Climate Zone Recommendation:	Pipe insulation d < 1-1/2" d >= 1-1/2"	 1" insulation 1-1/2" insulation	Water heating is not provided as part of the Tenant Improvement.