TENANT FIT-OUT GUIDE

THE SHOPPES AT ENGLISH VILLAGE -RETAIL TENANTS

INTRODUCTION

Welcome to Nuveen Real Estate's Tenant Fit-Out Guide.
This guide helps you make informed decisions during your design and construction phase, supports energy and cost savings throughout your lease term, ensures compliance with building standards and sustainability goals, and creates healthier, more comfortable spaces for your employees and customers.

Who Should Use This Guide:

- Tenants planning new fit-outs or renovations
- Design teams and architects
- General contractors and subcontractors
- Project managers

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SUMMARY: QUICK CHECKLIST

Use this checklist to ensure you've addressed all key requirements:

Planning Phase

- ☐ ↯ Confirmed project will not adversely affect building ENERGY STAR rating or other certifications
- ☐ Reviewed guide with design team and contractor
- ☐ Set sustainability goals
- ☐ Coordinated with property management

Metering

- ☐ ↯ Installed energy sub-meters
- ☐ Installed water sub-meters

Lighting

- ☐ ↯ 100% LED lighting specified
- ☐ ↯ Occupancy sensors in appropriate spaces
- ☐ Multi-level controls in conference rooms

HVAC

- ☐ ↯ Meets ASHRAE 90.1-202022 and local codes
- ☐ ↯ Programmable thermostats installed
- ☐ Pipe insulation completed
- ☐ ↯ Deadband controls implemented
- ☐ ↯ Occupancy-based controls in private offices
- ☐ ↯ Ventilation limited to 35% above ASHRAE 62.1-2016

Water

- ☐ WaterSense fixtures throughout
- ☐ Water bottle filling stations provided
- ☐ Sensor-operated fixtures installed

Materials

- ☐ Low-VOC products specified
- ☐ Environmental certifications documented
- ☐ Construction waste management plan created

Indoor Air Quality

- ☐ IAQ monitoring system installed
- ☐ MERV 13+ filters specified
- ☐ Pre-occupancy testing planned

Equipment

- ☐ ↯ ENERGY STAR equipment specified
- ☐ Equipment list reviewed

Operations Planning

- ☐ ↯ Maintenance schedule established
- ☐ Recycling program designed
- ☐ Sustainable purchasing policy drafted
- ☐ Staff training planned
- ☐ Employee engagement and communications strategy developed

1. PLANNING & DESIGN PHASE

Review and Plan

- Share this guide with your design team and contractor at project kickoff
- Establish your sustainability goals early in the design process
- Discuss objectives with your team and stakeholders

Building Systems

- Your fit-out must not adversely affect the building's ENERGY STAR rating or other building certifications
- Coordinate all work with building management to ensure compatibility with existing systems
- Notify property management of any changes that might affect building systems or certifications including modifications to HVAC zones, significant increases in electrical loads, or alterations to the building envelope.

Metering Requirements - ENERGY EFFECIENCY IMPACT

- Install sub-meters for all energy sources (electricity, natural gas, steam, chilled water, etc.) at the tenant level
- Install water meters at the tenant level- Meter Readers to be installed, if not already installed.
- Be prepared to share monthly usage data with property management if requested
- *Why this matters: You can't manage what you don't measure. Metering enables tracking, goal-setting, and continuous improvement—typically saving 10-20% on energy costs.*

Consider Green Building Certification for tenant space. Examples include:

- LEED for Interior Design and Construction: www.usgbc.org/leed
- ENERGY STAR for Tenant Spaces: www.energystar.gov/buildings
- Fitwel: www.fitwel.org
- WELL Building Standard (for health-focused design) https://www.wellcertified.com/
- Green Globes https://thegbi.org/assessment-certification/green-globes-certification/
- BREEAM: https://breeam.com/breeam-usa

Set Performance Targets

- Energy usage reduction goals
- Water conservation targets
- Waste diversion percentages during construction
- Indoor air quality standards

Early Engagement

- Involve your design team early to maximize sustainability opportunities
- Review applicable building codes and standards
- Consider Urban Land Institute's Tenant Energy Optimization Program: https://tenantenergy.uli.org/10-steps-savings

2. LIGHTING & ELECTRICAL

↯ Lighting Technology - ENERGY EFFECIENCY IMPACT ↯

- Use 100% LED lighting throughout your space
- Replace any existing mercury-containing lamps (fluorescent tubes, CFLs, or HID fixtures) with LED technology
- Ensure proper disposal of any mercury-containing lamps removed through certified recycling programs.
- *Why this matters: LED lighting uses 75% less energy than traditional lighting and lasts 25 times longer, providing immediate and ongoing cost savings.*

↯ Lighting Controls - ENERGY EFFECIENCY IMPACT ↯

- Install occupancy or vacancy sensors in:
    - Private offices
    - Conference rooms and meeting spaces
    - Restrooms
    - Storage rooms and closets
    - Break rooms
    - Copy/print rooms
- *Why this matters: Occupancy sensors can reduce lighting energy consumption by 30-50% in spaces with intermittent use.*

Multi-Zone Controls

- Provide at least three lighting levels or scenes in multi-occupant spaces (conference rooms, open office areas)
- Allow occupants to adjust lighting to their needs

↯ Advanced Lighting Design - ENERGY EFFECIENCY IMPACT ↯

- Target lighting power density (LPD) of 0.5W/SF or less
- Install dimming controls in spaces with access to daylight
- Provide individual task lighting at workstations with dimmer or multiple light levels
- Use reflective surfaces and light colors to maximize natural light
- *Why this matters: Achieving 0.5W/SF or less can reduce lighting energy by 50% or more compared to standard design.*

Smart Technology

- Consider smart outlets that can be controlled remotely or scheduled via building automation systems
- Install timers or scheduling systems to turn off lights automatically after hours

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3. HVAC & CLIMATE CONTROL

↯ Energy Performance - ENERGY EFFECIENCY IMPACT ↯

- Meet or exceed ASHRAE 90.1-2022 and local energy code requirements (whichever is more stringent)
- Comply with ASHRAE Standard 55-2017 for thermal comfort
- Maintain temperature set points within acceptable comfort ranges for 95% of occupied hours
  Why this matters: HVAC typically represents 40-60% of a building's energy consumption. Efficient systems are critical to both your costs and building performance.

Ventilation - ENERGY EFFECIENCY IMPACT
- Limit ventilation to no more than 35% above ASHRAE 62.1-2016 requirements (or local code, whichever is more stringent)
- This balances improved indoor air quality with energy efficiency
  Why this matters: Excessive ventilation can increase heating and cooling loads by 20-30%, significantly impacting energy costs.

Controls - ENERGY EFFECIENCY IMPACT
- Install programmable or smart thermostats where applicable
- Provide occupancy-based controls for private offices and special occupancies (conference rooms, training rooms)
- Ensure controls prevent simultaneous heating and cooling
  Why this matters: Programmable thermostats and occupancy controls can reduce HVAC energy by 10-30% through automated setbacks and demand-based operation.

Components
- Use mercury-free thermometers, switches, and electrical relays
- Insulate all steam, hot water, and chilled water pipes
- Inspect for and repair any pipe leakage

Recommended Best Practices

Air Quality Monitoring - ENERGY EFFECIENCY IMPACT
- Install CO_2 sensors in multi-occupant spaces (25+ people per 1,000 SF)
- Consider demand-controlled ventilation (DCV) systems that adjust outdoor air based on actual occupancy
- Set CO_2 limits at 900 ppm or lower
  Why this matters: DCV can reduce ventilation energy by 20-40% by providing outdoor air only when needed.

Advanced Systems - ENERGY EFFECIENCY IMPACT
- Use variable frequency drives (VFDs) on HVAC motors
- Implement economizer sequences to use outside air for free cooling when conditions permit
- Create separate zones for interior and perimeter spaces

- Install thermostatic radiator valves on heating systems
- Consider chilled beams or fan coil units for lab fit-outs
- Tie radiators or perimeter heating/cooling systems to VAV box controls and Building Management System (BMS)
  Why this matters: VFDs can reduce motor energy by 30-50%. Economizers provide free cooling and can reduce mechanical cooling energy by 10-40% depending on climate.

Filtration

- Use high-efficiency filters: MERV 13 or higher (or Class F7 per CEN EN 779-2002)
- Install filters to prevent bypass of unfiltered air

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4. PLUMBING & WATER EFFICIENCY

Fixture Selection

- Install WaterSense-labeled fixtures for all:
  - Toilets
  - Urinals
  - Showerheads (if applicable)
- Use sensor-operated fixtures to reduce high-touch surface transmission

Drinking Water

- Provide at least one drinking water dispenser within 100 feet of all regularly occupied areas (minimum one per floor)
- All new drinking water dispensers must be designed for water bottle refilling
- Dispensers should be UL listed and provide filtered water

Water Conservation

- Conduct a water audit to establish baseline usage
- Install aerators on faucets to achieve optimal flow rates
- Select ENERGY STAR-rated water-using equipment (water coolers, ice machines, dishwashers)

Water Treatment

- Install filters that remove suspended solids (1.5 µm pore size or less)
- Use UV disinfection systems rated by NSF/ANSI Standard 55
- Install devices rated for copper and lead reduction per NSF/ANSI Standard 53 or 58

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5. MATERIALS SELECTION

Required Standards

Low-VOC Products

- Confirm proper asbestos abatement and control before work begins
- Use low-VOC or zero-VOC products for:
  - Paints and coatings
  - Adhesives and sealants

    - Flooring materials
    - Wall coverings
    - Composite wood products
    - Furniture

VOC Limits for Common Products:

- Flat paints: < 50 g/L
- Non-flat paints: < 100 g/L
- Adhesives: Follow SCAQMD Rule 1168 or equivalent
- Sealants: Follow applicable standards

Recommended Material Priorities

1. Reused and Salvaged Materials

- Consider reusing existing furniture, fixtures, and materials
- Source salvaged or upcycled materials where feasible

2. Flexible Design Elements

- Use movable wall systems and furniture to extend space lifespan
- Design for adaptability to reduce future renovation needs

3. Products with Environmental Transparency Look for products with:

- Environmental Product Declarations (EPDs)
- Health Product Declarations (HPDs)
- Cradle to Cradle (C2C) certification
- Declare labels
- Green Seal or UL GREENGUARD Gold certification

4. Material-Specific Certifications

- **Carpets:** CRI Green Label Plus
- **Resilient flooring:** FloorScore certified
- **Wood products:** FSC-certified
- **Paints, adhesives, sealants:** UL GREENGUARD Gold

5. Recycled and Bio-Based Content

- Select materials with recycled content (especially for concrete, metals, drywall, carpet, tile)
- Choose rapidly renewable materials (bamboo, cork, linoleum, wool)

6. Regional Materials

- Source materials extracted or manufactured within 100 miles when possible to reduce transportation emissions

Helpful Databases

- Mindful Materials: www.mindfulmaterials.com
- UL SPOT: spot.ul.com
- Environmental Product Declaration Library: www.environdec.com

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6. INDOOR AIR QUALITY & OCCUPANT HEALTH

Air Quality Monitoring

- Install an IAQ monitoring system capable of tracking:
  - CO_2 levels
  - PM2.5 (particulate matter)
  - TVOC (total volatile organic compounds)
  - Temperature
  - Relative humidity

Pre-Occupancy Testing

- Consider third-party IAQ testing before occupancy

Recommended Health & Wellness Features

Air Purification

- Install air purification systems such as:
  - UVGI (ultraviolet germicidal irradiation) treatment
  - Bi-polar ionization
  - Activated carbon filtration

Biophilic Design

- Incorporate plants, water features, and natural materials
- Use wood, natural textures, and nature imagery
- Maximize access to daylight and outdoor views

Workspace Design

- Provide adjustable-height desks (sit-stand workstations)
- Specify ergonomic chairs with full adjustability
- Include under-desk storage or lockers
- Keep furniture partitions at 42" or lower to preserve daylight access

Special Spaces

- Designate quiet spaces for contemplation or meditation
- Provide a dedicated lactation room
- Create accessible outdoor areas where possible

Touchless Technology

- Install touchless fixtures on high-touch surfaces:
  - Entry doors and access control
  - Restroom faucets, soap dispensers, and hand dryers
  - Elevator controls where feasible

Acoustic Comfort

- Target maximum background noise of 40 dBA from HVAC systems
- Use sound-absorbing materials appropriately
- Address exterior noise on high-noise sites

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7. CONSTRUCTION PHASE

Construction IAQ Management

- Protect absorptive materials (carpets, ceiling tiles) from moisture
- Install absorptive materials after wet-applied VOC products have fully dried
- If operating HVAC during construction, use MERV 8 filters minimum
- Replace all filters with final MERV 13+ filters before occupancy
- Schedule tasks to minimize contaminant exposure

Waste Management Plan Develop and implement a plan that includes:

- Waste diversion goals for the project
- Types and quantities of expected waste materials
- Separation strategy (source-separated vs. commingled)
- Disposal/recycling facilities to be used
- Tracking method for waste diversion rates

Recommended Construction Practices

Waste Diversion

- Target 75% or higher diversion rate for non-hazardous construction waste
- Source-separate hazardous materials
- Track monthly and provide final summary

Construction Flush-Out

- After construction completion, flush space with 14,000 cubic feet of outdoor air per square foot before occupancy
- This removes residual construction contaminants

Permanent Entryway Systems

- Install entryway mat systems at least 10 feet long at main entrances
- Use permanently installed grates, grilles, or equivalent systems

Equipment Disposal

- Recycle, donate, or reuse all equipment and furnishings removed
- Document and report recycling activities to property management

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8. EQUIPMENT & APPLIANCES

ENERGY STAR Equipment - ENERGY EFFECIENCY IMPACT

Purchase ENERGY STAR certified products for:

- Computers and monitors
- Printers, copiers, and fax machines
- Office electronics
- Refrigerators and freezers
- Dishwashers
- Ice machines
- Water coolers
- Vending machines (retail)

Find certified products at: www.energystar.gov/productfinder

Retail & Medical Office Specific

Retail Tenants:

- Commercial food service equipment (if applicable)
- Display case lighting (LED)
- Commercial refrigeration with high-efficiency compressors
- Walk-in coolers and freezers with efficient controls

Medical Office Tenants:

- Medical refrigerators with temperature monitoring
- Sterilization equipment with energy-saving features
- Diagnostic equipment with sleep modes

Industrial Tenants:

- Compressed air systems with leak detection
- Material handling equipment with energy-efficient motors
- Industrial lighting with high-bay LED fixtures

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9. OPERATIONS & MAINTENANCE

Required Ongoing Practices

Energy & Water Management ENERGY EFFECIENCY IMPACT

- Implement best practices to reduce energy and water usage
- Share monthly meter data with property management if requested
- Maintain all systems per manufacturer recommendations

Waste & Recycling

- Provide dedicated recycling receptacles for:
  - Paper and cardboard
  - Metal, plastic, and glass
  - E-waste, batteries, and mercury-containing lamps
- Ensure proper signage for all waste streams
- Avoid trash-only bins at desks and in conference rooms

Sustainable Purchasing Adopt purchasing policies for:

- Recycled-content paper products
- Remanufactured printer supplies
- Green cleaning products
- ENERGY STAR office equipment
- Rechargeable batteries

System Maintenance

- Replace HVAC filters annually
- Recalibrate or replace IAQ sensors annually
- Maintain UV devices per manufacturer specifications
- Clean and sanitize water dispensers daily

- Replace water filters per manufacturer recommendations

Recommended Operational Best Practices

🗲 Temperature Management - ENERGY EFFECIENCY IMPACT 🗲

- Set back thermostats during unoccupied hours
- Maintain optimal setpoints during occupied hours
- Keep heat-generating equipment away from thermostats
- Remove unauthorized space heaters

🗲 Lighting & Power - ENERGY EFFECIENCY IMPACT 🗲

- Turn off lights and equipment when not in use
- Use advanced power strips to eliminate phantom loads
- Raise blinds in winter and lower in summer

Water Conservation

- Lower water heater temperature to lowest effective setting
- Monitor for leaks in supplemental cooling units and refrigerators

Waste Reduction

- Eliminate single-use plastics in break rooms
- Provide reusable dishes, cups, and utensils
- Implement default double-sided printing
- Use compostable products for events
- Consider compost collection service

Employee Engagement

- Conduct occupant satisfaction surveys bi-annually
- Provide regular communications on sustainability practices
- Train staff on energy and waste reduction practices
- Engage employees in wellness programming

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10. SPECIAL CONSIDERATIONS BY PROPERTY TYPE

OFFICE TENANTS

Focus Areas:

- Open office layouts with flexible furniture systems
- Conference room technology with auto-shutoff
- Kitchen/break room appliances and waste management
- Collaborative spaces with appropriate acoustics

Density Considerations:

- Plan for 150-200 SF per person typical
- Ensure adequate fresh air ventilation for occupant density
- Size HVAC appropriately for actual occupancy patterns

RETAIL TENANTS

Additional Requirements:

Customer-Facing Areas:

- Appropriate lighting levels for merchandise display (LED)
- Comfortable temperature control in selling areas
- Accessible and visible recycling receptacles
- Clean, well-maintained customer restrooms

Back-of-House:

- Efficient storage area lighting with controls
- Break room with sustainable appliances
- Proper waste and recycling management
- Loading/receiving area considerations

Specialized Equipment ENERGY EFFECIENCY IMPACT

Food Service (Restaurants, Grocers):

- ENERGY STAR commercial kitchen equipment
- Walk-in coolers/freezers with high-efficiency controls and LED lighting
- Anti-sweat heater controls on refrigerated cases
- Demand-controlled kitchen ventilation
- Grease trap maintenance program
- Commercial dishwasher efficiency
- Refrigeration system commissioning and regular leak inspections
- Water-efficient pre-rinse spray valves (maximum 1.28 gallons per minute)

Large Format Retail:

- Daylight harvesting in areas with skylights
- Separate HVAC zones for sales floor, storage, and offices
- Efficient refrigeration systems with leak detection
- Night setback strategies for HVAC and lighting
- Economizer controls on rooftop units

Chain Store Considerations:

- Coordinate with corporate standards while meeting building requirements
- Consider building-specific energy factors when applying prototypes
- Ensure corporate equipment specifications include efficiency standards
- Work with property management on shared utility management

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11. GREEN CLEANING (POST-OCCUPANCY)

Recommended Standards

Look for products certified by:

- Green Seal
- UL EcoLogo
- EPA Safer Choice
- LEED-compliant products

Cleaning Procedures

Hard Floors:

- Clean weekly with sustainable products
- No stripping or harsh coatings on hard surfaces

Carpet Care:

- Vacuum daily with HEPA-filter vacuums
- Inspect monthly for stains
- Spot clean with sustainable products
- Replace damaged carpet tiles rather than using harsh extraction chemicals

Timing:

- Perform any cleaning with strong chemicals or extraction equipment after business hours

Hand Hygiene:

- Provide touchless soap dispensers
- Use hand soaps meeting sustainability standards
- Provide hand sanitizer throughout the space

Chemical Storage & Safety

Storage:

- Store all cleaning chemicals in locked janitor closets
- Keep Safety Data Sheets (SDS) for all products
- Display hazard information clearly

Training:

- Train cleaning staff on chemical hazards
- Provide spill management procedures
- Follow manufacturer dilution instructions

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12. COMPLIANCE & REPORTING

Required Documentation

Maintain records of:

- Energy and water meter readings (monthly)
- Construction waste diversion reports
- IAQ monitoring data
- Filter replacement schedules
- Cleaning product purchases
- Equipment maintenance logs

Reporting to Property Management

Be prepared to provide:

- Monthly utility consumption data
- Annual sustainability performance summary
- Equipment replacement or upgrade notifications
- Any changes that might affect building systems or certifications

13. RESOURCES & CONTACTS

Standards & Guidelines

Energy Standards:

- ASHRAE 90.1: www.ashrae.org
- IECC: www.iccsafe.org

Indoor Air Quality:

- ASHRAE 62.1 (Ventilation): www.ashrae.org
- ASHRAE 55 (Thermal Comfort): www.ashrae.org
- EPA Indoor Air Quality: www.epa.gov/indoor-air-quality-iaq

Water Efficiency:

- WaterSense: www.epa.gov/watersense

Certification Programs:

- LEED: www.usgbc.org
- ENERGY STAR: www.energystar.gov
- Fitwel: www.fitwel.org
- WELL Building Standard: www.wellcertified.com

Product Information & Databases:

- Mindful Materials: www.mindfulmaterials.com
- Environmental Product Declaration Library: www.environdec.com
- Health Product Declaration Collaborative: www.hpd-collaborative.org
- Declare Label Database: living-future.org/declare

Helpful Tools:

- ULI Tenant Energy Optimization Program: tenantenergy.uli.org
- ENERGY STAR Portfolio Manager: www.energystar.gov/buildings

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Thank you for your commitment to creating an efficient, sustainable, and healthy space. We're here to support you throughout your fit-out process.
For questions or assistance, please contact property management.

This guide is based on industry best practices and green building standards. It is intended to assist tenants in creating sustainable, efficient, and healthy spaces. This guide does not constitute legal, technical, or professional advice, and does not represent endorsement of any specific products, vendors, or certification programs. Tenants and their design teams are responsible for ensuring compliance with all applicable building codes, regulations, and lease requirements. Nuveen Real Estate reserves the right to update this guide periodically to reflect evolving best practices and standards.