

# Energy Efficiency Compliance Verification

Comprehensive Checklist for Sustainability Assessment

## 1. Motor Efficiency Standards (IEC 60034-30-1)



### Motor Power Rating

Verify rated power matches nameplate and documentation



### Efficiency Class

Confirm IE classification per IEC 60034-30-1



### Efficiency Threshold

Calculate if measured efficiency meets IEC 60034-30-1 minimum for rated power and IE class



### Load Factor

Verify operating load is within optimal range per IEC standards



### Power Factor

Confirm power factor meets industry best practices at rated load

## 2. Building Envelope Performance (ASHRAE 90.1)



### Wall U-Value

Calculate thermal transmittance compliance with ASHRAE 90.1 climate zone requirements



### Window SHGC

Verify Solar Heat Gain Coefficient per ASHRAE 90.1 climate zone limits



### Insulation R-Value

Confirm thermal resistance meets ASHRAE 90.1 minimum requirements



### Air Leakage

Verify infiltration rate meets ASHRAE 90.1 limits at test pressure



### Thermal Bridging

Calculate linear thermal transmittance per ASHRAE 90.1 methodology

### 3. HVAC System Efficiency (ASHRAE 90.1)



#### Cooling COP

Verify chiller COP meets ASHRAE 90.1 minimum requirements



#### Heating HSPF

Verify HSPF meets ENERGY STAR requirements for heating equipment



#### Duct Leakage

Verify duct leakage meets ASHRAE 90.1 limits at operating pressure



#### Variable Speed Control

Confirm VFD presence per ASHRAE 90.1 requirements



#### Heat Recovery

Verify ERV effectiveness meets ASHRAE 90.1 minimum where required

### 4. Lighting Systems (ENERGY STAR & ASHRAE 90.1)



#### Luminous Efficacy

Verify lumens per watt meets ENERGY STAR minimum for fixture type



#### Power Density

Calculate LPD compliance with ASHRAE 90.1 allowable limits



#### Occupancy Controls

Confirm automatic shut-off per ASHRAE 90.1 requirements



#### Daylight Integration

Verify dimming controls in daylit zones per ASHRAE 90.1



#### Minor Items

≥80% of lighting and monitoring items must pass

## 5. Renewable Energy Systems

### Solar Panel Efficiency

Verify panel efficiency meets manufacturer specifications

### Inverter Efficiency

Confirm weighted efficiency meets CEC/industry standards

### System Performance Ratio

Calculate PR meets industry benchmarks

### Energy Yield

Verify kWh/kWp/year meets design projections

### Grid Integration

Confirm compliance with IEEE 1547 interconnection standard

## 6. Energy Management & Monitoring

### Metering Granularity

Verify sub-metering for major end uses

### Data Collection

Confirm 15-minute interval capability

### Baseline Establishment

Verify 12-month historical data

### Savings Calculation

Confirm M&V protocol compliance

### Reporting Frequency

Verify monthly energy reporting capability

## Compliance Scoring

**Critical Items:** All motor efficiency and safety items must pass

**Major Items:** ≥90% of building envelope and HVAC items must pass

**Minor Items:** ≥80% of lighting and monitoring items must pass

**Overall Score:** Weighted average ≥85% for compliance certification