



ENERGY STAR® Multifamily High Rise: Proposed Design Submittal Checklist

Performance Path Calculator

- Use the most recent version of the PPC & Simulation Guidelines found at www.energystar.gov/mfhr/guidance; ensure consistency with T&V
- (Prescriptive Path)** Complete only the Basic Info, In-Unit Lighting, Interior Lighting, and Exterior Lighting worksheets and include with the submission.

Basic Info

- Read the Instructions!
- Fill in all blue cells (even for Prescriptive Path)
- Don't overwrite the white cells (but, if you HAVE to, there's no password to unprotect)
- Check W/Sf column against model inputs
- Confirm schedules in software
 - Apts: 2.34 hrs/day
 - Lobbies/Corridors/Stairs/Garage: 24 hrs/day
 - Most others : 8-12 hrs/day
- Compare annual kWh savings to Table 6 in Reporting Summary

Reporting Summary

- Fill in all blue cells
- Table 1: Identify county so that Climate Zone in Table 2 can be confirmed
- Table 2: Confirm the Baseline (90.1 Standard) is consistent with Project Application and confirm that the modeler is well versed in ASHRAE 90.1 and all of its Appendices, plus the Simulation Guidelines
- Table 4: Use data to help complete Statement of Energy Design Intent (SEDI)
- Table 4: Use Notes to give brief narrative of building
- Table 5: Make sure Baseline column matches Appendix G (steel-frame Baseline building)
- Table 5: Make sure Proposed column has U-values supported by Appendix A
- Table 5: Confirm WWR in Baseline does not exceed 40% and Baseline window frame material is correct for the building type (nonmetal for wood-framed building, metal for others)
- Table 5: Confirm that ventilation fan power is not added to Baseline beyond the 0.0003kW/CFM
- Table 5: Verify Baseline HVAC meets Appendix G and that Baseline Corridor OA CFM is <0.09
- Table 6: Check that the savings in each end use can be justified by the measures in Table 5
- Table 6: Compare the Interior Lighting savings to Basic Info
- Table 6: Compare the Appliance savings to Appliances worksheet
- Table 6: Determine if DHW end use is reasonable (~2,000 kWh/unit or ~80 therms/unit)
- Table 6: Justify any measure that contributes more than 3% savings toward the Performance Target
- Table 7: Verify prices on the EIA website
- Table 6 & 8: If not using eQUEST, ensure that these Tables are overwritten with data from software and are consistent when converting



Windows eQUEST , Water Savings, DHW Demand, and Appliances [for eQUEST users]

- Read the Instructions!
- Fill in all blue cells
- Make sure data is consistent with T&V and Table 5 & 6 of Reporting Summary

In-unit Lighting

- Read the Instructions!
- Fill in all blue cells
- Don't list spaces that don't have hard-wired lighting installed
- Don't assume that a light fixture can illuminate the entire room
- Check the footcandle warning

Interior Lighting

- Read the Instructions and Notes!
- Fill in all blue cells
- For spaces with more than one fixture type, use multiple rows, but pro-rate the square footage
- Use the multipliers to save data entry effort
- Make sure ballast power is added for pin-type fixtures (not just bulb Wattage)
- Take note of the warnings when they appear (exceeding LPD or insufficient illumination)

Exterior Lighting

- Read the Instructions!
- Fill in all blue cells
- Do not enter square footage for an exterior space type if lighting is not proposed
- Use formulas to link back to the lighting schedule, and use the Description field

EIR for PTAC/PTHP

- Verify consistency with Reporting Summary and T&V

Results from eQUEST

- Enter energy measures as parametric runs to identify savings by measure

Simulation Summary

- Assess the reasonableness of the results (Do the \$ per apartment make sense?)



T&V Worksheets

- Use the most recent version of the T&V Worksheets found at www.energystar.gov/mfhr/guidance; ensure consistency with the PPC; avoid leaving cells blank (instead, use NA)

Project Info

- Verify that it is complete and confirm climate zone by looking up county online and then checking Appendix B of ASHRAE 90.1-2007.
- (**Prescriptive Path**) Ensure units and square footage are consistent with Basic Info from Performance Path Calculator

ERMs

- (**Performance Path**) Confirm that column B, C, D and E are complete and consistent with green worksheets as well as Performance Path Calculator
- (**Prescriptive Path**) Complete column C and E; ensure consistency with green worksheets

Prerequisites Checklist or Prescriptive Path Checklist

- Ensure that “Plan review” is selected, and explanations provided for anything flagged as “NO” or “NA”

Protocol Worksheets

- Appliances: Look up model number on ENERGY STAR website; confirm certification. If not listed, check archive list. Save as PDF or screenshot. Do not rely on cut sheets with ENERGY STAR logos
- DHW: Look up DHW model number in AHRI to confirm efficiency; list AHRI certificate number
- DHW: Look up showerhead and toilet in WaterSense directory to confirm certification; save as PDF or screenshot. Do not rely on cut sheets with WaterSense logos
- DHW (**Prescriptive Path**): Also look up lavatory faucet in WaterSense directory to confirm certification and confirm WaterSense showerhead is also <1.75 gpm
- Envelope: Confirm assemblies comply with Appendix A of ASHRAE 90.1-2007. Provide reference to specific tables and percentages requested. Retain cut sheets that support R per inch if higher than defaults.
- Heating/Cooling: Look up model numbers in AHRI to confirm efficiency; list in the table
- Heating/Cooling: Enter data into table for duct leakage testing to confirm that the correct number of units will be tested and threshold has been identified; data doesn't need to be entered in both Heating and Cooling worksheets
- Lighting: Can be completed at As-Built; compliance at PDS is based on the Performance Path Calculator
- Blower Door Test: Enter data into table for testing to confirm that the correct number of units will be tested and threshold has been identified
- Ventilation: Confirm all the supply, exhaust and OA fans are listed in schedule and rates comply with 62.1 or 62.2. If central risers for apartment exhaust, confirm that testing is noted in 8.2-VENT DUCT TIGHTNESS